Good Names Beget Favors:
The Impact of Country Image on Trade Flows and Welfare*

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Abstract

This paper estimates the effects of time-varying consumer preference bias on trade flows and welfare. We use a unique dataset from the BBC World Service Poll, which surveys (annually during 2005–2017 with some gaps) the populations of a wide array of countries on their views of whether an evaluated country is having a mainly positive or negative influence in the world. We identify the effects on consumer preference parameters due to shifts in these country image perceptions and quantify their general equilibrium effects on bilateral exports and welfare (each time for an evaluated exporting country, holding the exporting country's own preference parameters constant). We consider five important shifts in country image: the George W. Bush effect, the Donald Trump effect, the Senkaku Islands Dispute effect, the Brexit effect, and the Good-Boy Canadian effect. We find that such changes in bilateral country image perceptions have quantitatively important trade and welfare effects. The negative impact of Donald Trump's "America First" campaign rhetoric on the US's country image might have cost the US 4–5% of its total exports and welfare gains from trade. In contrast, the consistent improvement of Canada's country image between 2010 and 2017 has amounted to more than 8% of its total welfare gains from trade.

Key Words: Country Image; Consumer Preferences; Trade Flows; Quantitative Welfare Analysis
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1 Introduction

The country-of-origin label affects the decision to purchase products via three potential channels: cognitive, affective, and normative (Obermiller and Spangenberg, 1989; Verlegh and Steenkamp, 1999). For example, the fact a car is made in Japan acts as an informational cue that affects buyers' assessment of the product quality. However, the Japanese country-of-origin label may trigger an emotional response in buyers that surpasses the cognitive evaluation. For example, Chinese consumers may consider Japanese goods of good quality but avoid purchasing them if they have strong animosity towards Japan due to historical war experiences (Klein, Ettenson, and Morris, 1998). Similarly, Dutch consumers with strong animosity towards Germany due to the latter's aggression in World War II (WWII) may be reluctant to buy German products (Nijssen and Douglas, 2004). Finally, an American consumer may evaluate a Toyota car favorably and have no emotional response to Japan as a country of origin, yet comply with a "Buy American" norm that operates in the person's family or peer group.[1]

Based on this conceptual framework, we can organize the existing literature bearing on these three channels. First, on the cognitive channel, country-of-origin is documented by many marketing studies as an extrinsic product cue that consumers may use to infer product quality (Cordell, 1991; Chao, 1998; Insch and McBride, 2004; Hu and Wang, 2010; Godey, Pederzoli, Aiello, Donvito, Chan, Oh, Singh, Skorobogatykh, Tsuchiya, and Weitz, 2012), which may hence affect demand and trade patterns (Hallak, 2006; Khandelwal, 2010).

Second, regarding the affective channel, historical wars or military conflicts are often identified as an important determinant of consumer animosity. For example, many business studies (based on surveys or experiments) document the influence of historical animosity on consumer behaviors (Klein, Ettenson, and Morris, 1998; Nijssen and Douglas, 2004; Little, Little, and Cox, 2009; Cheah, Phau, Kea, and Huang, 2016; Harmeling, Magnusson, and Singh, 2015). The implications on international trade and investment flows are also identified in econometric studies for major wars or military conflicts (e.g., Che, Du, Lu, and Tao, 2015). Short of military conflicts, contemporary political tensions could potentially affect consumer sentiments and demand patterns as well, although evidence tends to show that such effects are short-lived (Morrow, Siverson, and Tabares, 1998; Davis and Meunier, 2011; Davis, Fuchs, and Johnson, 2019; Fuchs and Klann, 2013; Mityakov, Tang, and Tsui, 2013; Fisman, Hamao, and Wang, 2014; Du, Ju, Ramirez, and Yao, 2017). Beyond politics, economic events such as the German-Greek conflict during the Greek debt crisis (2010–2018) could equally heighten consumer animosity (Fouka and Voth, 2016).[2] Finally, contemporary cultural events may also dramatically reshape consumer preferences towards the products of a certain country. For example, Chang and Lee (2020) document significant shifts in

[1] Japanese car producers were a main target of Japan-bashing during the height of Japan-US trade frictions in the 1980s. However, anti-Japanese sentiments in the US appear to have subsided substantially by the beginning of this century.

[2] Specifically, the study shows that during the sovereign debt crisis of 2010–2014, Greeks living in areas where German troops committed massacres during World War II curtailed their purchases of German cars to a greater extent than Greeks living elsewhere.

consumer preferences towards Korean products in response to the Korean Wave phenomenon.[3]

Third, the normative channel is related to the boycott literature (John and Klein, 2003). Findings about the relevance of the normative effect in this literature are mixed, and depend on the boycott episode studied (Huang, Phau, and Lin, 2010; Hong, Hu, Prieger, and Zhu, 2011; Heilmann, 2016; Pandya and Venkatesan, 2016). For example, Michaels and Zhi (2010) estimate that the worsening US-French relationship in 2003 due to the Iraq War led to a reduction of bilateral trade by about 9%; similarly, Chavis and Leslie (2009) found that the US boycott of French wine resulted in 26% lower weekly sales at its peak and 13% lower sales over the six months of boycott. In contrast, Ashenfelter, Ciccarella, and Shatz (2007) concluded with no such effect, once taking into account the seasonal effect and the secular decline in French wine sales in the US. Along the same line, Teoh, Welch, and Wazzan (1999) found that the boycott of South Africa's apartheid regime had little effect on the valuation of US firms with South African operations or on the South African financial markets.

In this paper, built on our working paper (Chang and Fujii, 2012), we exploit a unique dataset, the BBC World Service Poll (WSP), to estimate changes in buyers' preferences (toward products of a country of origin) and the implied impacts on trade flows. Most importantly, we evaluate the consequences of such consumer preference changes on welfare based on quantitative trade models. To the best of our knowledge, this is the first paper to quantify the welfare impacts of changes in consumer preferences in a systematic framework for worldwide trade. In an independent study by Rose (2016), the same WSP measure was used to study its trade impacts. We go beyond the analysis by Rose (2016) in terms of econometric methodologies (dynamic panel estimations in addition to OLS/IV estimations; with new sets of instruments identified), data coverage (sector-level trade flows and intra-firm trade flows in addition to aggregate trade flows), and interpretations of the mechanism at work (consumer preferences versus "soft power"). Rose (2016) is a pure reduced-form empirical study, and thus is not targeted at quantitative welfare evaluation.

The BBC WSP was conducted annually during 2005–2014 and in 2017 for the BBC by GlobeScan and the Program on International Policy Attitudes (PIPA).[4] Each year, about one thousand respondents in each of the evaluating countries were surveyed. The respondents were asked whether they think an evaluated country is having a mainly positive or mainly negative influence in the world. We use the positive [negative] response ratio (PS_{ijt}, NG_{ijt})—the proportion of the respondents in an evaluating country j who view an evaluated country i positively [negatively] at the start of a year t—to measure (directed) bilateral country image perception. Table 1 summarizes the coverage of the sample. Figure 1 plots the average positive and negative response ratios (across all evaluating countries). It shows that the evaluated countries vary substantially in terms of how well they are perceived. The country image also exhibits significant variations across years (e.g.,

[3] Historical cultural affinities due to ethnic, colonial, or religious ties can potentially affect consumer preferences, although they can be interpreted alternatively as affecting trade cost in international exchange (Combes, Lafourcade, and Mayer, 2005; Guiso, Sapienza, and Zingales, 2009; Head, Mayer, and Ries, 2010).

[4] The Program on International Policy Attitudes (PIPA), which is now the Program for Public Consultation (PPC), is an initiative of the Center for International and Security Studies at the University of Maryland.

for the US, China, and Canada) and across country pairs (*cf.* Figure 3).

We consider this measure of country image to be a potentially powerful predictor of consumer preferences towards the products of the evaluated country by the population in the evaluating country, because the survey question is general enough to reflect the influence of either product quality or deep-rooted war animosity, as well as contemporary political, economic, and cultural events (which as highlighted in the discussions above could potentially trigger cognitive, affective, and normative responses in consumer behaviors). This measure has several advantages. First, it is not limited to consumer response to specific economic issues (Disdier and Mayer, 2007, on EU accession) or cultural events (Felbermayr and Toubal, 2010, on Eurovision Song Contest). Second, it is not limited to consumers in a specific country (Du, Ju, Ramirez, and Yao, 2017, on China) or region (Disdier and Mayer, 2007; Felbermayr and Toubal, 2010, on Europe). Third, its response directly represents those of potential consumers, instead of high-level political representatives (Mityakov, Tang, and Tsui, 2013, on UN voting patterns), whose preferences may or may not be shared by the general population. Fourth, it captures the realized response of consumers' opinions to events, be it strong or weak; this is in contrast with measures based on the counts of events (Davis, Fuchs, and Johnson, 2019), which may or may not translate into consumer affective responses or actions. Finally, many of the studies in the literature (political science, economics, or business) focus on negative events (Davis and Meunier, 2011; Davis, Fuchs, and Johnson, 2019) or consumer animosity due to past wars (Klein, Ettenson, and Morris, 1998; Nijssen and Douglas, 2004; Che, Du, Lu, and Tao, 2015), while less is said about positive events. We will show that the consistent improvement in Canada's image during 2010–2017, especially in countries which are its most important trading partners, amounted to more than 8% of its total welfare gains from trade.

We use an Armington (1969) model (in which bilateral preference parameters are affected by country image) to estimate the effect of country image on trade flows and on preference parameters, for the 2005–2014 period. We control for all typical trade-cost proxies that could affect trade flows, and exporter-year and importer-year fixed effects (FEs). Thus, any supply-side shocks that are multilateral in nature, such as worsened product qualities, will be absorbed by the exporter-year FEs (and the exporter-sector-year FEs in the sector-level estimations). Similarly, any systematic differences in consumer preferences across importing countries that are multilateral in nature, will be absorbed by the importer-year FEs (and the importer-sector-year FEs in the sector-level estimations). Hence, our identification relies on sufficient variations in residual bilateral country image perceptions across country pairs and across years. So long as any remaining supply-side bilateral shocks (e.g., to product qualities) are not systematically correlated with the demand-side bilateral shocks (to preferences), we have a clean identification of the country-image effect.

We then address potential identification threats in the following five ways. First, in addition to the exporter-year and the importer-year FEs, we further control for block-block FEs defined by the combinations of political systems, development stages, and geographical regions of the exporting and importing countries. This helps control for potential systematic variations in bilateral trade flows and in bilateral perceptions across these dimensions. Second, we identify instrumental variables (IVs) that are likely to be correlated with country image perceptions but not correlated with shocks to current bilateral trade, and conduct IV estimations. We first consider IVs that are constructed based on third-country evaluations, $PS_{ij't}$, of the same exporter i in the same year t (or third-country images, $PS_{i'jt}$, evaluated by the same importer j in the same year) as the bilateral relationship ijt whose trade flows are being studied. The set of third countries are chosen such that their evaluations of the same exporter (or their images evaluated by the same importer) are likely correlated with PS_{ijt} but not with unobservables influencing the trade flow from country i to country j in year t. We then consider non-PS-based instruments that measure bilateral leadership visits, and distance between the evaluated and evaluating countries in machine-learning democracy indices (Gründler and Krieger, 2016). We collect data on bilateral diplomatic visits by top office holders based on web search of news reports and articles. Four indicators of bilateral diplomatic visits are constructed with increasingly stronger criteria (excluding visits due to multilateral meetings, related to trade or investment agendas, or made by the top leader of a country) to reduce the likelihood that a bilateral visit may be correlated with trade shocks. The resulting IVs are all time-varying and bilateral in nature. All the IV estimation results (PS-based or non-PS-based) indicate that the proposed instruments are relevant by the first-stage F-statistics and valid by the Hansen J-test. We then combine the two sets of IVs, in addition to controlling for the block-block FEs, and show that the positive effect estimates of country image are robust to reasonably large deviations from the exclusion restriction for IVs, based on the methodology of Conley, Hansen, and Rossi (2012).

Third, we adopt the dynamic panel estimators of Arellano and Bond (1991) and Blundell and Bond (1998) to accommodate potential omitted country-pair unobservables, serial dependence in trade flows, and reverse causality. Fourth, we use sector-level trade flows and explore potentially heterogeneous effects across types of goods (consumer versus non-consumer goods; homogeneous versus differentiated goods), and verify that the pattern of heterogeneity is consistent with the proposed mechanism of consumer preferences. Fifth, we compile intra-firm trade flows across countries (from affiliates to parent companies, from parent companies to affiliates, or both) as a placebo test.[5] If country image affects international trade predominantly through consumer preferences, we expect country image perceptions to have weaker or nil impacts on intra-firm trade, relative to arm's length international transactions, since the counterparties in intra-firm transactions likely share similar country identities. Taken together, our results indicate that better country image positively affects trade flow and the pattern is consistent with the proposed mechanism of consumer preferences.

The ballpark figure based on the dynamic panel estimator indicates that an increase in the positive response ratio by one percentage point is associated with a 0.891 percentage point increase in logarithmic trade flows. This impact is both statistically and economically significant. For example, the US country image improved by about 17.7 percentage points between 2007 and 2011. Given our estimate, this implies a direct trade-promoting effect of 17.1% ($= e^{0.891\times0.177} - 1$) for

[5] We thank an anonymous referee for this suggestion.

American exports. The direct partial-equilibrium effect will be moderated in general equilibrium (as we show in Section 5), but the number serves to demonstrate the importance of consumer perceptions.

We then conduct counterfactual welfare analysis of major shifts in country image, given the estimated impact of country image on preferences and trade. For example, we compute the George W. Bush and the Donald Trump effects by simulating the counterfactual exports and welfare for the US in 2011 (the peak of the US country image), if each of the US's trading partners were to reverse their ratings of the US in 2011 to the level in 2007 (Bush) or 2017 (Trump), holding the US's own preference parameters unchanged. This simulated welfare effect is then compared to the US's total welfare gains from trade to evaluate the magnitude of importance of country image. As the evaluated country's own preference parameters towards its trading partners are held constant, any changes in the country's welfare are due to changes in its country image (and as a result, changes in its outward multilateral resistance), and not because of shifts in its own preferences. In the counterfactual analysis, we include all countries in the world (where data permit). Because not all countries are included in the BBC WSP survey, we present results based on three alternative assumptions about how the opinions in the countries not included in the survey have changed. In Scenario 1, we assume they have not changed their opinions against the evaluated country; in Scenario 2, they are assumed to take on the mean change in the views (of the BBC WSP evaluating countries) against the evaluated country, while in Scenario 3, the median change.

The observed country image measure can be affected by many factors, including military, economic, and diplomatic events. We do not attempt to tease out the contribution of each factor or event, but take the observed changes in bilateral country image as given. However, we label each exercise by the major factor that we believe is of first-order importance and most likely to have caused such observed shifts in country image. In addition to the US, we evaluate the Sino-Japan Senkaku Islands Dispute effects on China, the Brexit effects on the UK, and the Good-Boy effects on Canada.[6] As an illustration of the magnitude of the welfare and trade effects, we find that the consistent improvement of Canadian country image between 2010 and 2017 contributed to more than 8% of its total welfare gains from trade and increased its exports by 10%. To provide a gauge of the standard errors of the simulated welfare and trade effects, we also compute their 95% confidence intervals, which take into account the sampling errors in the country image measure or the estimation errors in the country image effect.

This paper is organized as follows. In Section 2, we provide detailed characterizations of our country image measures. In Section 3, we propose the conceptual framework and econometric specifications. Section 4 presents the estimated (partial) effects of country image on trade flows and implied tariff equivalent of the change in preference parameters. Section 5 presents the quantitative framework and algorithms of the welfare analysis. Section 6 concludes. In Online Appendix, we provide the detailed documentation of the data in Appendix A, and extra analysis in Appendix B–

[6] We use the term "Good-boy Canada" to refer to Canada's generally good country image, arguably due to many factors collectively, as we describe in Section 5.

Appendix D.

2 Measures of Country Image

The BBC World Service Poll, as introduced earlier, was conducted annually between 2005 and 2014 and in 2017 by GlobeScan and PIPA. Our econometric analyses in Section 4 are based on the survey data for the period 2005–2014, because some of our estimations exploit dynamic panel structures. We nonetheless include the latest available poll data from 2017 in this section to document how country image changed since 2014. The counterfactual welfare analyses in Section 5 will also exploit some of the country image data in 2017.

In each round of the survey, about one thousand respondents in each (evaluating) country were interviewed face-to-face or by phone. The respondents were asked: whether they thought each of the evaluated countries was having a mainly positive or mainly negative influence in the world. Other than "mainly positive" and "mainly negative", the recorded responses included "depends", "neither, neutral", "DK/NA (don't know or no answer)", even though these choices were not volunteered by the interviewer. We treat both "depends" and "neither, neutral" answers as "neutral".

The exact timing of the survey varied slightly from year to year and from country to country, but the survey was conducted typically in January of the reference year (i.e., year t) or December of the previous year (i.e., year $t-1$). In a few cases, the survey was conducted slightly earlier or later. Given this, the country image variables used in our analysis refer to a country's image around the *beginning* of the year.

The list of evaluated and evaluating countries, and the years in which the countries appear in the survey, are shown in Table 1. The evaluated countries tend to be major economic powers, or politically-sensitive countries with strained international relations. The set of evaluating countries, on the other hand, is relatively diverse in terms of geographical location and political/economic structure. Table 2 provides the GDP, population, and trade shares for the set of evaluated and evaluating countries relative to the world. As Table 2 indicates, the number of evaluated countries increased from 6 in 2005 to 15 (excluding North Korea for which we do not have reliable GDP figures) in 2010. The number of evaluating countries varied between 17 and 24. Together, these economies accounted for about three-quarters of the gross world product and two-thirds of the world population in the years considered. The bilateral imports studied (corresponding to observations with non-missing PS_{ijt}) amounted to 20–30% of total global imports. The effect estimates of PS_{ijt} we obtain in Section 4 could potentially be applicable to the evaluated countries' total exports (around 50% of world exports).

We use the proportion of the respondents in country j who said at the beginning of year t that country i had a mainly positive [negative] influence in the world to measure bilateral country image perception, and label it as the positive [negative] response ratio PS_{ijt} [NG_{ijt}]. For most records (country-pair-years), we also have the neutral response ratio NU_{ijt} and the proportion NA_{ijt} of respondents who gave no answer or said "don't know".

Figure 1 provides an overview of the evaluated countries' country image. The left-hand-side of the figure reports the average positive response ratio $\overline{PS}_{i\cdot t}$ and the right-hand-side the average negative response ratio $\overline{NG}_{i\cdot t}$ towards country i, where the averages are taken over the evaluating countries j without weights.[7] Note that the right axis is in reverse order to facilitate comparisons. The figure shows that countries such as Canada and Germany had consistently good country image (i.e., a larger [smaller] fraction of people viewed these countries positively [negatively] relative to the other evaluated countries) over the sample period. In contrast, countries such as Iran and Pakistan had consistently poor country image. The difference across countries in their ratings can be as large as 40 percentage points.

While the ranking of countries in terms of $\overline{PS}_{i\cdot t}$ and $\overline{NG}_{i\cdot t}$ are relatively stable over time, there are notable exceptions. For example, the country image of the United States significantly improved during 2007–2011 by as much as 17.7 percentage points. This coincided with the change in the administration from Bush to Obama. But the upward trend started heading south during Obama's second term, and the US country image dropped precipitously after Trump was elected in late 2016. In contrast, China's country image hit bottom in 2009 and improved steadily afterward until 2012. A series of product scandals plagued China in the late 2000s, and the year 2009 marked the turning point when reported food scandals in China declined noticeably.[8] Apparently, the Beijing Olympics in 2008 and the publicity that this mega event brought did not manage to offset the negative effects of food scandals (and political issues such as human rights, pollution, and media freedom). Importantly, in September 2012, several violent protests broke out across China against the Japanese government's decision to nationalize three islets of the Senkaku Islands, a long-disputed territory in the East China Sea, raising the specter of military conflict between the two nations (Perlez, 2012; Voigt, 2012; Moore, 2012; The Wall Street Journal, 2012).[9] This incident clearly dented China's country image, as its ratings dropped significantly in 2013, and Japan's country image took a hit as well. Finally, compared to 2014, several major countries' images shifted in 2017. For example, the UK's Brexit decision in 2016 appears to have brought down its favorable ratings,[10] while Canada overtook Germany as the most favored country. Views towards Russia sustained a sharp decline since 2013, likely due to its long-term military involvement in

[7] Specifically, $\overline{PS}_{i\cdot t} \equiv \sum_j PS_{ijt}/N_{Jt}$ and $\overline{NG}_{i\cdot t} \equiv \sum_j NG_{ijt}/N_{Jt}$, where N_{Jt} is the number of evaluating countries in year t with data on these response ratios.

[8] Some of these incidents include, e.g., the 2007 pet food recalls and the 2008 Chinese milk scandal, where pet food and infant formula were found to be contaminated with melamine. As an indication of consumer reactions, in a poll conducted in Japan right after the 2008 incident of insecticide-contaminated dumplings, 76% of the Japanese said they would not use Chinese food again (Agence France Presse, 2008). We used Factiva to count the number of articles that contain the words "China" and "food scandal" in major news and business publications. The number was over 150 on average between 2005 and 2008, but dropped to 29 in 2009 and stayed below 50 until 2012.

[9] See, e.g., Heilmann (2016, Section 2.2) for a summary of the historical background. The Japanese officials claimed that the Japanese government's purchase of the islets from their private owner was intended to prevent the then ultra-conservative governor of Tokyo from buying them, a step that would have heightened the clash with China. This move, however, led to strong anti-Japanese protests in several Chinese cities, which later turned violent against Japanese business establishments in China.

[10] An Ipsos Mori poll of 16 nations in July 2016 showed that one in four respondents in the EU states surveyed was less likely to buy British following the referendum result (Mertens, 2016).

Ukraine and Syria (The Economist, 2016b).[11]

We can also further characterize the measures of country image by running regressions of PS_{ijt} and NG_{ijt} on three-way fixed effects (FEs) of evaluated country i, evaluating country j, and year t. For both evaluated and evaluating countries, we take the United States as the base country. Figure 2 summarizes the estimated FEs for each evaluated and evaluating country. The countries that appear on the right of the vertical axis in Figure 2(a) [Figure 2(b)] tend to receive [give] a higher positive response ratio than the United States after controlling for the year FE and the evaluating-country [evaluated-country] FE. Similarly, the countries that appear above the horizontal axis tend to receive [give] a higher negative response ratio than the United States after controlling for the year FE and the evaluating-country [evaluated-country] FE.

Figure 2(a) suggests that countries with a high positive response ratio are those with a low negative response ratio. It also shows that, even after controlling for the evaluating-country FE and the year FE, Canada and Germany have the best country image, while Iran and Pakistan have the poorest country image. Note that all the points in Figure 2(a) are below the negative 45-degree line. This means that people in the surveyed countries tend to have a more non-neutral (positive/negative) view about the United States than towards the other countries. This may be because the United States is the most well-known country in the world and is covered the most by the mass media.

In comparison, Figure 2(b) shows that most countries are simultaneously less positive and less negative than the United States towards others (in other words, they tend to be less opinionated than Americans). Some countries such as Germany and Turkey, however, tend to view other countries more negatively than the United States, whereas African countries such as Ghana, Kenya, and Nigeria tend to view other countries more positively. Japan, positioned way off the negative 45° line in Figure 2(b), is an interesting case. Its people appear very reserved in opinions and respond with a large proportion of "neutral" answers (often above 30%, even towards China, and sometimes above 50%).

As our analysis in Sections 3 and 4 will control for exporter-year (it) and importer-year (jt) FEs, the multilateral dimensions of country image illustrated above will be absorbed by these time-varying FE terms. Thus, identification of the country image effect requires the sample to exhibit sufficient variations in bilateral country image: e.g., how well perceived China is in Pakistan compared to in Japan (relative to Pakistan's and Japan's average opinions towards other countries). To characterize these relative bilateral perceptions, we run a regression of $PS_{ijt} = \mu_{it} + \nu_{jt} + r_{ijt}$, controlling for the evaluated-year and the evaluating-year FEs. We then take the average of the residuals for each country pair over the years to obtain $\widetilde{PS}_{ij} = (1/T) \sum_t \tilde{r}_{ijt}$, where T is the number of years of observations and $\tilde{r}_{ijt} \equiv PS_{ijt} - \widetilde{\mu}_{it} - \widetilde{\nu}_{jt}$ are the residuals from the regression. These are illustrated in Figure 3.

Interestingly, many of the unconditional bilateral views among countries continue to hold after

[11] In September 2013, just before the Maidan revolution, 88% of Ukrainians felt "positively" about Russia, said the Kiev International Institute of Sociology. By May 2015, that number had fallen to 30%, as reported by The Economist (2015).

controlling for multilateral FEs. For example, China is disliked by Japan and the US allies, and the negative feeling is reciprocated by China towards Japan. This reflects the deep impact of the two Sino-Japanese Wars (1894–1895 and 1937–45). In contrast, China is well liked by many African and Latin American countries. In spite of Germany's good overall country image, it is loathed by Greece. Indeed, the intensity of the negative feeling is only second to that of China towards Japan. This apparently reflects the Greek people's resentment of the EU's dealing (led by Germany) of the Greek Debt crisis since 2010 (Fouka and Voth, 2016). Geopolitical allies help explain Pakistan's extreme favor of China and Iran, and its disfavor of the US. There are some mutual lovers, such as France and Germany, and Israel and the US. In contrast, South Korea is unilaterally beloved by the Chinese and Japanese people, possibly due to the phenomenal Korean Wave (in TV dramas and pop culture) in the region during the period of our study, whereas the Korean people appear to still regard China and Japan as their archenemies. In sum, Figure 3 indicates there are useful bilateral variations across country pairs in country image perceptions, even after we control for time-varying evaluated and evaluating country FEs.

Finally, perceptions of country image may be correlated across evaluating countries or evaluated countries. We compute the pairwise correlations of the evaluating countries in their views over time, $corr(PS_{ijt}, PS_{ij't})$, for each evaluated country i and for each combination of evaluators (j, j'). Similarly, we compute the pairwise correlations of the evaluated countries in their country images, $corr(PS_{ijt}, PS_{i'jt})$, perceived by each evaluator j and for each combination of evaluated countries (i, i'). We then examine how bilateral country image perceptions are correlated. Table A.2 summarizes the findings.

We find that perceptions of country image tend to be positively correlated between evaluators (j, j') that: had fewer bilateral Militarized Interstate Disputes before 1945 (MID^b), are in a military alliance (*alliance*), have the same political system (*ComPol*), are in the same geographical region (*ComRegion*), have similar development stages (*ComDev*), and are more genetically similar (*GenDist*). Countries that share common language (*ComLang*), have ever been in a colonial relationship (*colony*), or have a Generalized-System-of-Preferences (GSP) agreement (GSP^b) also tend to have correlated views.[12] On the other hand, the images of evaluated countries (i, i') tend to be positively correlated if they: had more bilateral MIDs before 1945, are in a military alliance, have the same political system, have similar development stages, and are less genetically similar. Pairs that are closer in physical distance (*LogDist*) but do not share a border (*Border*), have ever been in a colonial relationship, have a preferential trade agreement (PTA), or have a GSP agreement also tend to be viewed in a correlated way.

As an additional step, it might also be useful to examine how *changes* in bilateral country image perceptions ($\Delta PS_{ijt} \equiv PS_{ijt} - PS_{ij,t-1}$) are correlated across countries. We repeat the correlation analysis as above but for ΔPS_{ijt}, and consider the same list of determinants (in levels since they

[12] See Appendix A for the definitions of the variables. Since the time dimension is removed by the correlation calculation, the covariates used in Table A.2 are the average of the variables across time if they are time-varying. Since correlation is symmetric, the symmetric bilateral version of the covariates are used (and denoted with a superscript b) if the original variable is directional. For example, $MID^b_{jj'} \equiv MID_{jj'} + MID_{j'j}$ and $GSP^b_{jj'} \equiv GSP_{jj'} + GSP_{j'j}$.

are mostly time-invariant or slow-moving processes). Table A.3 indicates that the signs of the determinants' effects on correlations in ΔPS_{ijt} are the same as their counterparts in Table A.2 for correlations in PS_{ijt}, whenever the effects are statistically significant in both tables. The effects also have similar orders of magnitude. For example, two evaluating countries jj' sharing the same political system tend to have positively correlated views toward others across time both in levels and in changes. Similarly, the images of two evaluated countries ii' in a military alliance tend to be positively correlated, and so do the changes in their images.

3 Estimation Framework

We adopt the conceptual framework of Armington (1969) because it explicitly allows for bilateral country-of-origin preference parameters. Specifically, let there be $i = 1, \ldots, N$ countries. In each year t, each importing country j chooses the import quantity q_{ijt} from each origin country i by solving the following utility maximization problem:

$$\max_{q_{ijt}} \quad Q_{jt} = \left(\sum_i b_{ijt}^{(1-\sigma)/\sigma} q_{ijt}^{(\sigma-1)/\sigma} \right)^{\sigma/(\sigma-1)} \qquad \text{s.t.} \ \sum_i p_{ijt} q_{ijt} = E_{jt}, \tag{1}$$

where $b_{ijt}(> 0)$ is a time-varying distaste parameter for goods produced in country i perceived by buyers in country j, $\sigma(> 1)$ indicates the elasticity of substitution across sources of imports, E_{jt} is the nominal expenditure of country j, and $p_{ijt}(\equiv p_{it}\tau_{ijt})$ is the destination price, equal to the exporter's supply price p_{it} scaled up by the variable (iceberg) trade cost factor τ_{ijt}. The solution to (1) implies a nominal value of exports from i to j equal to $X_{ijt} \equiv p_{ijt} q_{ijt} = \left(\frac{b_{ijt} p_{it} \tau_{ijt}}{P_{jt}} \right)^{1-\sigma} E_{jt}$, where $P_{jt} \equiv \left[\sum_i (b_{ijt} p_{it} \tau_{ijt})^{1-\sigma} \right]^{1/(1-\sigma)}$ is the associated aggregate price index in country j. The market-clearing condition requires that:

$$\begin{aligned} Y_{it} &= \sum_j X_{ijt} \\ &= (p_{it})^{1-\sigma} \sum_j \left(b_{ijt} \tau_{ijt} / P_{jt} \right)^{1-\sigma} E_{jt}, \end{aligned} \tag{2}$$

where Y_{it} is the total sales of goods by country i to all destinations, which may be different from its aggregate expenditure E_{it} if trade is not balanced. Use (2) to solve for $(p_{it})^{1-\sigma}$ and substitute the result in the expression of X_{ijt} and P_{jt}. We have:

$$X_{ijt} = \frac{Y_{it} E_{jt}}{Y_{wt}} \left(\frac{b_{ijt} \tau_{ijt}}{\Pi_{it} P_{jt}} \right)^{1-\sigma} \tag{3}$$

where

$$\Pi_{it}^{1-\sigma} \equiv \sum_j (b_{ijt}\tau_{ijt}/P_{jt})^{1-\sigma} e_{jt}, \quad (4)$$

$$P_{jt}^{1-\sigma} = \sum_i (b_{ijt}\tau_{ijt}/\Pi_{it})^{1-\sigma} s_{it}, \quad (5)$$

$Y_{wt} \equiv \sum_j Y_{jt}$, $e_{jt} \equiv E_{jt}/Y_{wt}$, and $s_{it} \equiv Y_{it}/Y_{wt}$. As first introduced by Anderson and van Wincoop (2003), Π_{it} and P_{jt} can be regarded as the multilateral resistance (MR) to trade of exporter i and importer j in year t, respectively. They reflect the weighted average of relative bilateral trade cost, augmented by preference bias here, across all destinations of sales for an exporter i and all sources of imports for an importer j, using as weights the expenditure share (e_{jt}) of destination markets and the supply share (s_{it}) of sources of imports relative to the world, respectively.

We hypothesize that a change in bilateral country image perception (PS_{ijt}) could affect the preference parameters b_{ijt} such that: $(1-\sigma)\ln b_{ijt} = a_1 + \gamma PS_{ijt}$, where γ captures the logarithmic changes in trade values associated with a one-percentage point increase in PS_{ijt}. In addition, assume that the unobserved trade cost depends on the observable trade-cost proxies $\mathbf{Z}_{ijt}$ log-linearly such that $(1-\sigma)\ln \tau_{ijt} = a_0 + \boldsymbol{\beta}^T \mathbf{Z}_{ijt}$. This implies an estimable equation of (3):

$$\ln x_{ijt} = \gamma PS_{ijt} + \boldsymbol{\beta}^T \mathbf{Z}_{ijt} + \chi_{it} + \zeta_{jt} + \varepsilon_{ijt}, \quad (6)$$

where $x_{ijt} \equiv X_{ijt}(Y_{wt}/Y_{it}E_{jt})$ is bilateral trade flow normalized by gross output and expenditure of the exporting and importing countries, relative to the world output; χ_{it} and ζ_{jt} are exporter-year and importer-year fixed-effect terms, which absorb the MR terms as well as other shocks specific to the exporter-year and importer-year, respectively. We control for a long list of trade-cost proxies, including bilateral distance, language proximity, legal origin, colonial relationship, border dummy, preferential trade agreements (PTAs), Generalized System of Preferences (GSPs), currency unions, and trade policy measures. Further details on the measurement of these variables are provided in Appendix A. The baseline results are reported in Section 4.1.1.

Given the specification in equation (6), any supply-side shocks that are multilateral in nature, such as worsened product qualities, would be absorbed by the exporter-year FEs (and the exporter-sector-year FEs in the sector-level estimations). Threats to identification arise from any remaining supply-side bilateral shocks that could be systematically correlated with the demand-side bilateral shocks to consumer preferences. To address these concerns, we adopt the following strategies. First, in addition to the exporter-year and the importer-year FEs, we further control for block-block FEs defined by the combinations of political systems, development stages, and geographical regions of the exporter and the importer. This helps control for potential systematic variations in bilateral trade flows and in bilateral perceptions across these dimensions (see Section 4.1.3 for further discussion). Second, to address potential endogeneity concerns, we identify instrumental variables (IVs) that are likely to be correlated with PS_{ijt} but not correlated with shocks to current bilateral trade. The first type of IVs we consider are constructed based on third-party country image perceptions ($PS_{ij't}$ and $PS_{i'jt}$), guided by the correlation structure of PS_{ijt} across (j, j') and (i, i') respectively as elaborated in Section 2. More details are provided in Section 4.1.4. The second type of instruments we consider are based on bilateral diplomatic visits and distance in machine-learning democracy indices between the evaluated and evaluating countries. More details are provided in Section 4.1.5. All of the resulting IVs vary over time and across country pairs, and are shown to be relevant and valid by conventional econometric tests. In Section 4.1.6, we combine the two sets of IVs, in addition to controlling for the block-block FEs. In Section 4.1.7, given this specification, the positive effect estimates of country image are shown to be robust to reasonably large deviations from the exclusion restriction for IVs, based on the methodology of Conley, Hansen, and Rossi (2012). Third, we adopt the dynamic panel estimators of Arellano and Bond (1991) and Blundell and Bond (1998) to accommodate potential omitted country-pair unobservables, serial dependence in trade flows, and reverse causality. The arguments are further developed in Section 4.1.8.

For validation of the mechanism at work, we also study the trade flows at sector levels and identify potential heterogeneous impacts of country image across sectors. The framework above can be easily extended to allow for multiple sectors by assuming an upper-tier Cobb-Douglas preference over the sectors (with expenditure share α_k for $k = 1, 2, \ldots, K$) and a lower-tier CES preference for each sector as in (1) over goods imported from different countries of origin (with variables suitably indexed by sector k). Assume similarly that $(1 - \sigma_k) \ln b_{ijkt} = a_k + \gamma_k PS_{ijt}$. The corresponding sector-level gravity equation becomes:

$$\ln x_{ijkt} = \gamma_k PS_{ijt} + \boldsymbol{\beta}_{\boldsymbol{k}}^T \mathbf{Z}_{ijkt} + \chi_{ikt} + \zeta_{jkt} + \varepsilon_{ijkt}. \tag{7}$$

While it is possible to estimate γ_k for each sector, we summarize the information by imposing some commonality assumptions. Starting with the most restrictive setup, we assume that γ_k is the same across all sectors, which allows us to make a direct comparison with the estimates obtained from the aggregate trade data. We then relax this assumption to allow γ_k to depend on the types of goods (consumer versus non-consumer goods, and homogeneous versus differentiated goods). If country image affects trade predominantly through consumer preferences, we would expect the effect to be larger on consumer goods than on non-consumer goods, and larger on differentiated goods than on homogeneous goods. Conceptually, endogeneity is less a concern at the disaggregated trade level, especially if the estimated effects systematically differ across types of goods.

Finally, as a placebo test, we also compile intra-firm trade flows across countries (from affiliates to parent companies, from parent companies to affiliates, or both). We expect country image perceptions to have weaker or nil impacts on intra-firm trade, relative to arm's length international transactions. One reason is that affiliates in the host country may not necessarily identify with the host country's view toward the home country (of the parent company). Similarly, a change in the attitude of the parent company's home country toward a foreign country where the affiliates are based may not affect the parent company's intention to purchase from its affiliates internally. Thus, if country image affects international trade predominantly through consumer preferences, we expect such impacts to be weaker on intra-firm trade, since the counterparties in such transactions likely share similar country identities.

4 Estimation Results

4.1 Aggregate Trade Flows

We start with the basic specification in (6) and sequentially generalize it as discussed in Section 3 to address potential endogeneity and omitted variable bias concerns. All specifications control for exporter-year (evaluated-year) and importer-year (evaluating-year) fixed effects unless otherwise stated.

4.1.1 OLS/PPML Estimations

In Column 1 of Table 3, we include a long list of conventional gravity equation covariates, trade policy measures, as well as variables that may be correlated with PS_{ijt}. See Appendix A for the documentation of the variables and Table A.1 for their summary statistics. The estimation results indicate that an increase in the positive response ratio by one percentage point is associated with an increase of 1.359 percentage points in logarithmic trade flows. This impact is both statistically and economically significant. For example, the US country image (in terms of PS_{ijt}) improved by about 17.7 percentage points between 2007 and 2011. Given our estimate, this implies a direct trade-promoting effect of 27.2% ($= e^{1.359\times0.177} - 1$).

The estimates for the other trade determinants have the expected signs and reasonable magnitudes. A one-percent increase in distance is associated with a 0.781% decrease in trade. Sharing a common language facilitates trade by approximately 71.1% ($= e^{0.537} - 1$). PTAs are also found to promote trade. The six variables—MID, *alliance*, $ComPol$, $ComRegion$, $ComDev$ and $GenDist$—that may affect country image perceptions (as suggested by Table A.2) are found not to have direct effects on trade flows. We henceforth drop them from the gravity equation.

The effects of tariffs and non-tariff barriers turn out to be insignificant. This is the case whether we use the baseline gravity equation covariates with tariff $LogTariff^{wa}_{ijt} \equiv \log(1 + tariff^{wa}_{ijt})$ and non-tariff measure NTM_{ijt} (Column 2), drop the non-tariff measure (Column 3), or use alternative measures of tariffs such as simple average (Column 4) and line average (Column 5) instead of weighted average of tariff lines.

As documented in Appendix A, the quality of the data on non-tariff barriers is less than ideal and the resulting measure of non-tariff barriers NTM_{ijt} is likely problematic, because the data coverage appears not to be comprehensive across countries (but with asymmetrically more frequent entries of non-tariff barriers for certain countries). We hence rely mainly on the tariff measures in the rest of the paper (for both aggregate and sector-level analysis). The effects of tariffs by the dynamic panel estimations and at the sector level, as will be seen in Sections 4.1.8–4.2.2, can be precisely estimated and have negative signs consistent with ex ante expectations.

We then repeat the above analysis using the Poisson Pseudo Maximum Likelihood (PPML) estimator (Silva and Tenreyro, 2006). This estimator is shown to be consistent in the presence of heteroskedasticity, while providing a natural way to include zero-trade observations. We do not, however, expect the results to change significantly here because the sample happens to have few zero trade observations at the aggregate bilateral level. The PPML results corresponding to Columns 1–5 are presented in Columns 7–11 of Table 3. The PPML estimates for PS_{ijt} are in the same order of magnitude as the OLS estimates. The conclusions regarding the other covariates also remain similar.

4.1.2 Lagged Country Image and Contemporary Country Image

In Column 6 of Table 3, we allow bilateral trade to depend on lagged bilateral perceptions $PS_{ij,t-1}$, which reflects the events up to the start of the previous year, and the contemporary component ΔPS_{ijt}, which reflects revisions to bilateral perception due to recent events that happened in the past year. The lagged component $PS_{ij,t-1}$ is likely to capture the effects of country image up to a recent past. The revision to country image ΔPS_{ijt} perceived by j with respect to an exporter i over the past year could then be interpreted to pick up the genuine effect of changes in consumer preferences on demand. As indicated, even after controlling for $PS_{ij,t-1}$, the coefficient on ΔPS_{ijt} is statistically positive: a one-percentage point larger ΔPS_{ijt} is associated with 1.145% larger trade flow. The effect of lagged country image $PS_{ij,t-1}$ is also significant and in an order of magnitude similar to that of ΔPS_{ijt}. The conclusion is robust to using PPML estimations in Column 12.

4.1.3 Further Fixed-Effect Controls and Clustering

To address concerns that both trade flows and PS_{ijt} may vary systematically across dimensions demarcated by political systems, development stages, or geographical regions, we verify the robustness of the benchmark results by further including three sets of block-block fixed effects. The first set is defined by the combination of political systems of the exporting (evaluated) and the importing (evaluating) country, the second set by their combination of development stages, and the third set by their combination of geographical regions.[13] For example, the first set includes four fixed effect indicators: democracy to democracy, democracy to non-democracy, non-democracy to democracy, and non-democracy to non-democracy. Table 4 repeats the benchmark result in Column 1, with exporter-year and importer-year FEs and with errors clustered at the (directional) country-pair level. Column 2 shows that the significant and positive effect of PS_{ijt} continues to hold (at 0.931) when the estimation further controls for the three sets of block-block FEs. In Columns 3 and 4, we allow errors to cluster at the exporter-year and further at the importer-year level. The significance of the effect estimate still holds. Finally, we combine all the fixed-effect controls and also cluster the errors at all the dimensions introduced above; the findings in Column 5 suggest that the positive

[13] In particular, the political systems are classified into democracy and non-democracy; the development stages into industrialized and non-industrialized, and the regions into: East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, North America, South Asia, and Sub-Saharan Africa.

effect of country image is robust to these additional FE controls and generalized error structures. In Columns 6–10, we repeat similar exercises using the PPML estimator, and the significant country image effect continues to hold.

We discuss the analysis considering exporter-importer (country-pair) FEs in Sections 4.1.6 and 4.1.8 below. In Appendix B, we discuss clustering the errors at the exporter level. In essence, once the exporter-year FEs are controlled for as in our default specification, it is not necessary to cluster by i, because the residual variations in PS_{ijt} (as well as the residuals in trade flows) have negligible correlations within clusters defined at the exporter level. The same applies to clustering by it. Similarly, once the importer-year FEs are controlled for, there is no compelling reason to cluster by j or jt. Thus, in what follows, we focus on specifications in which errors are clustered at the (directional) country-pair level, with the exporter-year and importer year FEs controlled for. This choice of clustering is also the standard approach in the empirical gravity literature. In Appendix B, nevertheless, we provide the parallel estimation results when errors are instead clustered at the exporter level.

4.1.4 IV Estimations: PS-based IV

We now discuss potential endogeneity concerns and propose candidate instruments. Suppose the potential endogeneity can be conceptualized as follows, such that the residual ε_{ijt} in the gravity equation for exports from i to j in year t is $\varepsilon_{ijt} = \nu_{ijt} + \tilde{\varepsilon}_{ijt}$, where ν_{ijt} is some unobserved omitted variable and $\tilde{\varepsilon}_{ijt}$ is white noise. Suppose in addition that the perception measure PS_{ijt} depends on both ν_{ijt} and other shocks κ_{ijt}, so that $PS_{ijt} = F(\nu_{ijt}, \kappa_{ijt})$. To construct an instrument for PS_{ijt}, we could consider third-country perception of the same exporter $PS_{ij't}$ for which we expect to have $corr(\nu_{ijt}, \nu_{ij't}) = 0$ and $corr(\kappa_{ijt}, \kappa_{ij't}) \neq 0$. Of course, the shocks (ν_{ijt} and κ_{ijt}) are unobserved by definition, but we can choose third-party countries j' for which $PS_{ij't}$ is likely to be correlated with PS_{ijt} (based on the correlation analysis in Section 2) and for which the shock to trade flows from i is unlikely to be significantly correlated with that from i to j.

To this end, we classify the bilateral relationship of countries j' versus j by the same list of criteria used in Table A.2. For example, $ComLang_{jj'}$ indicates whether j' and j share a common language. We take the set of countries j' *not* sharing a common language as j, and take the average of $PS_{ij't}$ across j' in year t (such that $ComLang_{jj'} = 0$) as a candidate IV. We label the resulting instrument $PS_{ij't}^{ComLang,c}$. The superscript c symbolizes the set of j' that are in the complement set of j by the indicator used.

Specifically, the indicator $ComLang_{jj'}$ is shown in Table A.2 to be among the significant determinants of $corr(PS_{ijt}, PS_{ij't})$. As the identified effects of these determinants are in a relative sense (in the sense that the correlation between PS_{ijt} and $PS_{ij't}$ are stronger when j and j' share a common language than otherwise), they do not indicate the absolute level of correlation. Thus, we ultimately rely on the significance of the first-stage coefficient estimate for the instrument, and the first-stage F-statistic, to verify the strength of the instrument (whether it meets the criterion: $corr(\kappa_{ijt}, \kappa_{ij't}) \neq 0$). Second, turning to the condition $corr(\nu_{ijt}, \nu_{ij't}) = 0$, because language is an important characteristic of a country's culture, countries j' and j not sharing a common language are less likely to be subject, for example, to common preference shocks in their demand for imports from an exporter i, so that $corr(\nu_{ijt}, \nu_{ij't}) \simeq 0$ is more likely to hold. Notwithstanding the economic motivations, we will verify the validity (exclusion restriction) of the candidate instruments formally by the Hansen J-test, as is the standard in the literature.

We also consider IVs constructed in a similar way but based on how the country images are correlated across evaluated countries (i, i'). The ideal instruments are such that $corr(\kappa_{ijt}, \kappa_{i'jt}) \neq 0$ but $corr(\nu_{ijt}, \nu_{i'jt}) = 0$. Motivated by the former, we similarly shortlist significant determinants of the correlations in the country images of evaluated countries (i, i'), as reported in Table A.2. We then use these criteria to identify the set of i' such that $corr(\nu_{ijt}, \nu_{i'jt}) = 0$ is more likely to hold. For example, we choose i' such that i' are relatively different from i in terms of genetic distance (formally, i' that has a genetic distance from i larger than i's median distance to all the other evaluated countries). We take the average of $PS_{i'jt}$ across i' in year t according to this criterion. The resulting instrument is labeled $PS_{i'jt}^{GenDist,c}$. To motivate the validity ($corr(\nu_{ijt}, \nu_{i'jt}) = 0$) of a candidate IV such as this, note that countries i'' that are similar to i genetically might be subject to correlated demand shocks (e.g., for consumer goods) that affect both their capacities to export to importer j. Using observations of $PS_{i'jt}$ based on i' that are more distant from i genetically lowers the likelihood of such correlated trade shocks.

According to Table A.2, there are several significant determinants of $corr(PS_{ijt}, PS_{ij't})$ or $corr(PS_{ijt}, PS_{i'jt})$ that can be used as potential criteria to construct the PS-based instruments. We relegate the results based on the larger sets of IVs to Table A.4 in the appendix, and present the results based on the two IVs introduced above as the benchmark, although their findings are similar. This choice is based on three considerations. First, the set of third countries that are used to construct the two PS-based IVs ($PS_{ij't}^{ComLang,c}$, $PS_{i'jt}^{GenDist,c}$) are likely more diverse than, say, those that are not in the same development stage as j (as there are many types of languages and genetics, but only two types of development stage in the sample). The diversity of third countries used to construct the IV could imply less likelihood of common trade shocks that might be systematically correlated with unobservables in the trade outcome of ijt. Second, in Section 4.1.6, we will consider IV estimations that also control for the three sets of block-block FEs introduced in Section 4.1.3. Recall that these FEs are related to combinations of geographical regions, development stages, or political systems. The two IVs constructed based on the indicators of common language and genetic distance are likely to retain much of the residual variations after including these FEs. Third, in Section 4.1.7, we will examine the robustness of the effect estimates to violation of the exclusion restriction for IVs. As the number of IVs increases, the combinations of dimensions in which the exclusion restriction can be violated become too large to implement and to visualize the results in a comprehensible manner.

The estimation results with the two PS-based IVs are reported in Table 5. First, $PS_{ij't}^{ComLang,c}$ and $PS_{i'jt}^{GenDist,c}$ are found to be significant in the first-stage regression. The first-stage coefficient of either instrument turns out to be negative. The Hansen J-test (when both IVs are used) and the

F-statistic suggest that these two instruments pass the test for exclusion restriction and are strong IVs. The effect estimates of PS_{ijt} based on the IV GMM and IV PPML are similar in magnitudes relative to OLS and PPML (cf. Columns 3 and 9 of Table 3 based on the same list of controls), and continue to be significant economically and statistically. An increase in the positive response ratio by one percentage point is associated with a 2.037 percentage point increase in logarithmic trade flows based on IV GMM and 1.453 percentage point based on IV PPML, using the combination of the two instruments (Columns 7–9 of Table 5). The effect estimates of PS_{ijt} are in similar orders of magnitude if instead we use $PS_{ij't}^{ComLang,c}$ (the jj'-based instrument, Columns 1–3), or $PS_{i'jt}^{GenDist,c}$ (the ii'-based instrument, Columns 4–6) alone.

4.1.5 IV Estimations: Non-PS-based IV

We now explore alternative instruments for PS_{ijt} that are not built on third-party country image perceptions. Following the notations introduced in the previous section, the ideal instruments for PS_{ijt} in this case should be correlated with κ_{ijt} but not with ν_{ijt}. The first instrument we consider is bilateral diplomatic visits by top office holders (the equivalent of president, vice president, prime minister or deputy prime minister) from country i to country j in year t. We identify the top office holders for the sample of countries and years under study. Given the list of leaders, we use web search engines to manually identify their visits (if any) in each year to each country in the sample during their term. Detailed documentation of our search procedure is provided in Data Appendix A.9. Such high-profile visits are likely to influence the public opinion in country j toward country i in year t. Alternatively, a shock to PS_{ijt} might also affect the likelihood of bilateral leader visits in the same direction. Given the information on leader visits compiled, we exclude visits that took place due to multilateral meetings (e.g., APEC Ministerial Meetings or G8 Summits). This is because leader visits to attend multilateral meetings are not specifically targeted at improving the bilateral ties between i and j; the presence of multiple countries' heads in the host country j might crowd out or dilute the impact (if any) of such visits on the country image of each individual country i in j. In addition, such multilateral meetings might also reach policy resolutions related to trade. Excluding visits due to multilateral meetings improves the chance that the instrument is correlated with κ_{ijt} but not with ν_{ijt}. We label the resulting instrument $LeaderVisitI_{ijt}$, which is an indicator for diplomatic visits by top office holders from country i to country j in year t (excluding visits that are related to multilateral meetings).

We also experiment with a few variations of this instrument to reduce the likelihood that a bilateral visit may be correlated with trade shocks. First, we further exclude bilateral visits if news coverage of the visits includes keywords/phrases (such as signing of trade agreements, opening of new air/sea routes, and easing of visa requirements), suggesting that the visits might be related to trade/investment agendas. We denote the resulting instrument $LeaderVisitII_{ijt}$, which is an indicator for diplomatic visits by top office holders from country i to country j in year t (excluding visits that are related to multilateral meetings and/or related to trade and investment). The next two variations, $LeaderVisitIII_{ijt}$ and $LeaderVisitIV_{ijt}$, are the counterparts of $LeaderVisitI_{ijt}$

and $LeaderVisitII_{ijt}$, but further exclude visits by the top leader of country i in year t (the equivalent of president or prime minister). This is to further reduce the possibility that the visit might directly affect trade flows, considering the larger policy-making capacity of the top leader. This set of instruments based on leader visits, although promising, does not have a lot of variations, because diplomatic visits by top office holders are not a frequent event at bilateral levels, especially when we exclude visits in the ways described above to improve the likelihood that the resulting instrument satisfies the exclusion restriction.

We thus consider an additional instrument, which offers more variations across time and country pairs. This instrument is based on the time-varying machine-learning democracy index (D_{it} for country i in year t) developed by Gründler and Krieger (2016, 2021). We use the continuous version of the index ($D_{it} \in [0, 1]$), which enables detailed and sensitive measurement of democracy.[14] We construct the instrument, $MLDI_{ijt} \equiv |D_{it} - D_{jt}|$, as the distance in the levels of democracy between country i and country j in year t. We argue that $MLDI_{ijt}$ is likely negatively correlated with PS_{ijt}, because countries that are more different in their democratization are less likely to share the same view toward world events and to view each other favorably. On the other hand, it is plausible that $MLDI_{ijt}$ is not systematically correlated with unobservables ν_{ijt} in bilateral trade. In particular, note that $MLDI_{ijt} \equiv |D_{it} - D_{jt}| = D_{it} - D_{jt} + 2(D_{jt} - D_{it}) \times \mathbf{1}(D_{jt} > D_{it})$. Since the first two terms will be absorbed by the exporter-year and importer-year FEs, residual variations in $MLDI_{ijt}$ reflect variations of the third term in a fraction of observations (where $D_{jt} > D_{it}$ holds). A positive shock to residual variations in $MLDI_{ijt}$ could be due to an increase in D_{jt} or a decrease in D_{it}. Since either scenario is possible, there is no strong reason to expect the shocks to $MLDI_{ijt}$ to vary with trade shocks in a systematic manner (despite that the level of democracy might be correlated with trade shocks).[15] We will also conduct econometric tests to gauge the strength and the validity of the proposed instruments.

Table 6 reports the estimation results. The instruments $MLDI_{ijt}$ and $LeaderVisit_{ijt}$ are negatively and positively correlated with the bilateral perceptions PS_{ijt}, respectively, consistent with the a priori reasoning discussed above. The first-stage F-statistic tends to be smaller than in the case with the PS-based IVs in Section 4.1.4. This is consistent with our expectation discussed above that $LeaderVisit_{ijt}$ does not vary substantially across time and country pairs, and is not a very strong IV, even when combined with the additional variations in $MLDI_{ijt}$. Our non-PS-based IVs are nonetheless sufficiently strong, since the F-statistics exceed the rule-of-thumb cutoff (10) for weak IVs. Consistent with the weaker nature of this set of IVs, the coefficient estimates of PS_{ijt} are noisier with larger standard errors, but they are not statistically different from the estimates in Table 5. Note also that the standard errors for PS_{ijt} in Table 6 are smaller when diplomatic visits are added to the list of IVs. The lower bound of this set of estimates suggests that an increase

[14] `https://www.ml-democracy-index.net/downloads/`.

[15] For example, if democracy is positively (or negatively) correlated with trade openness, an increase in D_{jt} and a decrease in D_{it} both imply an increase in $MLDI_{ijt}$ (where $D_{jt} > D_{it}$ holds), but opposite effects on bilateral trade. The idiosyncrasies in the possible underlying scenarios of an increase in $MLDI_{ijt}$ suggest attenuated likelihood that the instrument $MLDI_{ijt}$ is systematically correlated with unobservables in bilateral trade flows.

in the positive response ratio by one percentage point is associated with a 2.639–2.752 percentage point increase in logarithmic trade flows based on the IV PPML estimator.

4.1.6 IV Estimations with Block-Block FEs

We can consider including exporter-importer (directed country-pair) FEs. There are, however, a few issues. First, PS_{ijt} is measured with errors because it is based on a sample survey. Measurement errors in PS_{ijt} attenuate estimated values of γ. This issue is significantly exacerbated when we include country-pair FEs. As Table A.5 in the appendix indicates, exporter-importer FEs (together with exporter-year and importer-year FEs) explain 94.2% of the variations in PS_{ijt} in a static model. In this case, the residual variation in PS_{ijt} is small and the noise-to-signal ratio is large once country-pair FEs are controlled for. Second, we can address time-invariant country-pair specific unobservables by the dynamic panel approach of Arellano and Bond (1991), as is done in Section 4.1.8. Built-in instruments in this approach are able to capture some of the sampling/measurement error in PS_{ijt} by construction. Other IVs do not have this feature. Thus, we prefer using the dynamic panel approach to accommodate exporter-importer FEs and also serial correlations in trade outcomes. Third, we are intrinsically interested in cross-country-pair variations in PS_{ijt} as documented in Figure 3. For example, deep-rooted war animosity can only be captured through cross-country-pair variations, because we do not have historical data on PS_{ijt}. The specifications without country-pair FEs allow us to exploit/incorporate some of these important country-pair variations. For readers' information, Tables C.1–C.3 in Appendix C repeat the main estimations in Tables 4–6, with country-pair FEs included. As expected, the coefficient γ cannot be precisely estimated. Given the caveats noted above, insignificance of γ (when the exporter-importer fixed effects are included) may be only a reflection of serious attenuation bias.

In this section, we consider adding the block-block FEs introduced in Section 4.1.3 in the context of IV estimations. The idea is to use the IVs to address potential residual unobserved heterogeneity across country pairs that might simultaneously affect PS_{ijt} and ε_{ijt} but are not already controlled for by the block-block FEs (and the other covariates). Recall that the three sets of block-block FEs are defined by the combinations of political systems, the combinations of development stages, and the combinations of geographical regions, of the exporting (evaluated) and the importing (evaluating) country, respectively.

The estimation results are reported in Table 7. In the first specification, we use the two PS-based IVs, $PS_{ij't}^{ComLang,c}$ and $PS_{i'jt}^{GenDist,c}$. Both instruments are significant in the first stage, with sufficiently large F-statistics, and also pass the Hansen J-test. More importantly, the coefficient estimates of γ in the main equation are positive and significant, with a similar order of magnitude as the basic OLS and PPML estimates in Columns 3 and 9 of Table 3. In particular, an increase in the positive response ratio by one percentage point is associated with a 1.726 percentage point increase in log trade flows based on the IV PPML estimator.

Given that the PS-based IVs are stronger than the non-PS-based IVs (by their first-stage F-statistics as reported in Tables 5 and 6), in the next three specifications we combine these two

PS-based IVs with the non-PS-based IVs ($MLDI_{ijt}$ alone, or $MLDI_{ijt}$ with $LeaderVisit_{ijt}$). We find that the instruments have the expected signs, are collectively strong by the F-statistics, and pass the Hansen J-test for exclusion restriction (the χ^2 p-value is indeed very large and close to one). The effect estimates of PS_{ijt} on trade flows when the non-PS-based IVs are included are very similar to the first set with only PS-based IVs. For example, Column 12 of Table 7 indicates that an increase in the positive response ratio by one percentage point is associated with a 1.734 percentage point increase in log trade flows, based on the two PS-based IVs, $MLDI_{ijt}$, and $LeaderVisitII_{ijt}$. The findings remain very similar if we replace the leader visit instrument by $LeaderVisitIII_{ijt}$ or $LeaderVisitIV_{ijt}$.[16,17]

4.1.7 Robustness of IV Estimations (with Block-Block FEs) to Deviations from Exclusion Restriction à la Conley, Hansen, and Rossi (2012)

In this section, we assess the robustness of the IV estimates (with the block-block FEs included). The methodology follows that of Conley, Hansen, and Rossi (2012) by considering plausible deviations of the instrument(s) from the exclusion restriction, and conducting inferences for the coefficient of interest (i.e., coefficient γ on PS_{ijt}) under these deviations. In our context, this is to allow a candidate IV (say, $PS_{ij't}^{ComLang,c}$) to have a direct effect on trade flows in the main equation (6), with a slope coefficient $\hbar$ on the instrument.[18] The IV exclusion restriction is equivalent to the dogmatic prior belief that $\hbar$ is identically 0. Conley, Hansen, and Rossi (2012) proposed a method to analyze the sensitivity of the IV estimates to the violation of $\hbar = 0$.

We use the Local-To-Zero (LTZ) approach in Conley, Hansen, and Rossi (2012), which requires priors over the distribution of $\hbar$.[19] Let deviations from the exclusion restriction be parameterized by the parameter δ. In particular, assume that the direct effect of an instrument on trade flows is normally distributed with mean $\delta/2$ and variance $\delta^2/12$, i.e., $\hbar \sim N(\delta/2, \delta^2/12)$, as was done in Conley, Hansen, and Rossi (2012). For ease of comparison, a uniform distribution with the same mean and variance has a lower bound at δ (and a support of $[\delta, 0]$) for $\delta \leq 0$, and alternatively, an upper bound at δ (and a support of $[0, \delta]$) for $\delta \geq 0$. A larger absolute value of δ indicates a larger degree of expected deviation from the exclusion restriction. The method of Conley, Hansen, and Rossi (2012) provides the confidence intervals of the effect of PS_{ijt} on trade flows under each

[16] These two indicators as explained above, and as suggested in Table A.1, do not have substantial variations, and in the current specification with block-block FEs included, their coefficients in the first stage cannot be precisely estimated. Other than this caveat, all the patterns are similar to those in Table 7 with $LeaderVisitI_{ijt}$ or $LeaderVisitII_{ijt}$ used.

[17] Table C.4 repeats the IV estimations above, with the block-block FEs replaced by the exporter-importer FEs. Similar to Tables C.1–C.3, the coefficient of interest γ is not precisely estimated because there are very limited variations in PS_{ijt} left after controlling for the exporter-importer FEs.

[18] This is with the understanding that in the extended setup, the main equation is appended with the three sets of block-block FEs.

[19] The method of Conley, Hansen, and Rossi (2012) is developed for linear models only, corresponding to the IV GMM columns in our tables. We choose the LTZ approach in Conley, Hansen, and Rossi (2012), because it provides both point estimate and confidence intervals of the treatment effect. The full Bayesian approach has the same function, but it requires priors over the distribution of $\hbar$ (as does the LTZ approach) and also assumptions regarding the distribution of the error terms.

parameterization value of δ.

We start the analysis with only one IV, because the combinations of possible deviations grow exponentially with the number of IVs, and implementation and visualization of the results become a challenge. Nonetheless, we will still attempt to illustrate a few representative combinations afterward with the use of two IVs or four IVs as in Table 7. To begin, we redo the estimations of Table 5 but further with the three sets of block-block FEs included. The baseline results are reported in Table A.6, which corresponds to $\hbar = 0$ in the setup of Conley, Hansen, and Rossi (2012). Figure 4 reports the findings if we allow possible deviations from the exclusion restriction for the IV being used. We consider possible deviation parameter values in the range of $[-4, 4]$. This range is chosen in view of the possible direct effects of the instruments on trade flows. Given that the PS-based IVs have the same scale $[0, 1]$ as PS_{ijt}, it is reasonable to expect any direct effect of the instrument on trade to be less than the effect of the main variable of interest (PS_{ijt}).[20] The latter tends to fall in the range of $[0, 2]$ given the estimates we have obtained in Table A.6 and Table 7 with block-block FEs included. Thus, we consider a direct effect of the instrument on trade in the range of $[-4, 4]$ to be very large deviations to use for robustness checks. The first plot in Figure 4 indicates that by using $PS_{ij't}^{ComLang,c}$ as an IV, the 90% confidence intervals for the effect of PS_{ijt} on trade are well above zero and positive, for deviations from the exclusion restriction as large as close to $\delta = -4$. Plot (b) of Figure 4 suggests that if we rely on $PS_{i'jt}^{GenDist,c}$ as the IV instead, the conclusion is less robust than the case of $PS_{ij't}^{ComLang,c}$, but it still requires deviations close to $\delta = -2$ for our conclusion to be overturned. Thus, in this case, as suggested by Conley, Hansen, and Rossi (2012), instruments can yield informative results even under appreciable deviations from an exact exclusion restriction.

We now consider the specification with two IVs (based on the two PS-based IVs). The baseline results were previously reported in Columns 1–2 of Table 7, which corresponds to $\hbar = 0$ in the setup of Conley, Hansen, and Rossi (2012). In Figure 5, we consider deviation from the exclusion restriction: (a) by $PS_{ij't}^{ComLang,c}$, (b) by $PS_{i'jt}^{GenDist,c}$, (c) by both in the same direction as the specified deviation parameter δ, and (d) by the two in opposite directions (deviation from exclusion restriction for $PS_{ij't}^{ComLang,c}$ is parameterized by δ, while that for $PS_{i'jt}^{GenDist,c}$ is parameterized by $-\delta$). Because the two IVs are negatively correlated with PS_{ijt} (by the first-stage estimates), a negative $\hbar$ weakens the effect estimate of PS_{ijt}. When both IVs deviate in the same direction, the effect estimate of PS_{ijt} is moderated downward by more; hence this represents a less favorable scenario to the positive finding. The reverse is true when both deviate but in the opposite direction, because the downward and upward adjustments counteract each other; thus, this represents a more favorable scenario to the positive conclusion. Plots (a) and (b) of Figure 5 show that we can allow larger deviations in either $PS_{ij't}^{ComLang,c}$ or $PS_{i'jt}^{GenDist,c}$ from the exclusion restriction, compared with their counterparts in Figure 4. This suggests that including both of these two instruments increases the robustness of the positive findings in the current context, with respect to deviations from the exclusion restriction by each individual IV. Plot (c) of Figure 5 suggests that even in the

[20] Similar arguments for the choice of ranges of deviation appeared in Conley, Hansen, and Rossi (2012).

less favorable scenario of the four presented here, it would still require a sizable deviation from the exclusion restriction by both IVs (close to $\delta = -2.4$ each) for the positive conclusion to be overturned. Finally, Plot (d) of Figure 5 suggests that when the two IVs have opposite direct effects on trade flows, the conclusion of a positive effect of PS_{ijt} on trade flows is very robust (up to deviations of $\delta = 4$ for $PS_{ij't}^{ComLang,c}$ and of $\delta = -4$ for $PS_{i'jt}^{GenDist,c}$).[21] In sum, we can conclude with reasonable confidence that the IV estimates of the effect of PS_{ijt} (with the block-block FEs controlled for) are robust to plausible degrees of deviations from the exclusion restriction, based on the two PS-based IVs.

In Appendix D, we repeat the analysis for the specification with four IVs as in Columns 10–11 of Table 7, with non-PS-based IVs ($MLDI_{ijt}$ and $LeaderVisitII_{ijt}$) further included. Basically, the positive conclusion is still very robust to deviations from the exclusion restriction by each of the instruments. Like the observations made above, with more IVs considered, we need to adjust downward the range of admissible deviations for the conclusion to be maintained, if the four IVs deviate from the exclusion restriction simultaneously in a way to quadruple (in a sense) the downward adjustment of the treatment effect of PS_{ijt}. Taking this mechanical adjustment into account, we can conclude with reasonable confidence that PS_{ijt} has a positive trade-promoting effect. It is also noteworthy that the IV estimates in Tables 5–7 are mostly not smaller than their OLS counterparts. This suggests that there is no strong evidence that the OLS estimates are upward biased.

4.1.8 Dynamic Panel Estimation

In this section, we further adopt the dynamic panel estimators of Arellano and Bond (1991) (AB). This generalizes the baseline static specification in two important ways. First, it allows for serial dependence in trade flows, and reduces possible reverse causality bias due to interactions between past trade flows and current bilateral perceptions. Second, by design, the dynamic panel estimators also accommodate exporter-importer fixed effects, which will be differenced out in the estimation process. This helps address potential concerns of omitted variable bias due to unobserved time-invariant country-pair characteristics.

Note that in the analysis so far, we have exploited both between and within country-pair variations in PS_{ijt}. Between variations across country pairs in PS_{ijt} are important and account for 87.6% of variations in PS_{ijt}, as illustrated in Section 2 and reported in Table A.5. Thus, by using the dynamic panel estimators (which difference out the between-country-pair variations and rely on within-country-pair variations only), the estimates might be attenuated and subject to larger standard errors relative to the benchmark result (as we will elaborate further below).

To implement the AB estimator, we augment the right-hand-side of equation (6) with lagged trade flows ($\ln x_{ij,t-1}$). We allow the current trade flows to depend on both innovations in bilateral

[21] The Stata module *plausexog* provided by Clarke (2014) allows deviations by only one instrument at a time. We modified the ado file and allowed deviations by multiple instruments simultaneously. The modified ado file is available on request.

perceptions ΔPS_{ijt} and lagged bilateral perceptions $PS_{ij,t-1}$ to facilitate the comparison with Columns 6 and 12 of Table 3. We could instead adopt a more conventional specification that includes the current and lagged perceptions, PS_{ijt} and $PS_{ij,t-1}$. As we will show, these two specifications lead to very similar conclusions, but we will present the first specification as the default, since it allows a straightforward economic interpretation of the coefficients. In sum, the dynamic estimation specification we use is:

$$\ln x_{ijt} = \rho \ln x_{ij,t-1} + \gamma \Delta PS_{ijt} + \gamma_L PS_{ij,t-1} + \boldsymbol{\beta}^T \mathbf{Z}_{ijt} + \chi_{it} + \zeta_{jt} + \upsilon_{ij} + \varepsilon_{ijt}, \tag{8}$$

where υ_{ij} indicates exporter-importer unobservables. The list of controls in $\mathbf{Z}_{ijt}$ now excludes time-invariant bilateral covariates.

In the setup of Arellano and Bond (1991), the dynamic specification in (8) is transformed into an equation in first difference, using lagged trade flows $\ln x_{ij,t-2}$ (and higher-order lags) as instruments for $\Delta \ln x_{ij,t-1}$. We allow both country image measures and the tariff measure to be endogenous. Given this specification, the AB estimator then uses $\Delta PS_{ij,t-2}$ as the instrument for $\Delta^2 PS_{ijt}$ ($\equiv \Delta PS_{ijt} - \Delta PS_{ij,t-1}$) and $PS_{ij,t-3}$ as the instrument for $\Delta PS_{ij,t-1}$. Similarly, $LogTariff^{wa}_{ij,t-2}$ is used as the instrument for $\Delta LogTariff^{wa}_{ij,t}$. Longer lags of the endogenous variables can be used as additional instruments, as we will do for robustness checks.

Table 8 reports the results based on the estimator of Arellano and Bond (1991). Trade flows are found to be serially correlated with an autocorrelation coefficient ρ on the order of around 0.3. The estimates also indicate that a one-percentage point larger ΔPS_{ijt} is associated with a 0.891 percentage point increase in log bilateral imports of j from i. This magnitude is robust whether we use only the baseline instruments, or up to four more lags of the endogenous variables as instruments. The estimates are also very similar if we allow the dynamic dependence of the trade flows to be of order 2 instead of order 1. In fact, the estimated coefficient of $\ln x_{ij,t-2}$ is insignificant. This moderate level of serial correlation implies that the IVs in the Arellano and Bond (1991) framework have good predicative powers of the endogenous variables and are not subject to the critique of this estimator that is relevant when the series under study is highly persistent. We also conduct the Arellano-Bond test, and verify that the first-order correlation in the error term of the first-difference equation (i.e., between $\Delta\varepsilon_{ijt}$ and $\Delta\varepsilon_{ij,t-1}$) is significant as it should be, but the second-order correlation (between $\Delta\varepsilon_{ijt}$ and $\Delta\varepsilon_{ij,t-2}$) is insignificant. These test results are reported in Table 8. Therefore, there is no evidence that the identification assumptions of the AB estimator are violated. In Table A.7, we redo the estimations by using the current and lagged perceptions instead (PS_{ijt} and $PS_{ij,t-1}$), and show that the findings are similar. Finally, Tables A.8–A.9 repeat the analysis based on the system dynamic estimator of Blundell and Bond (1998) (BB). The BB estimator adds extra moment conditions, using lagged differences of the endogenous variables as instruments for their levels in the dynamic equation (8). The results are virtually the same as those based on the AB estimator.

Table 8 shows that ΔPS_{ijt} has a significant and positive effect on bilateral trade flows. Meanwhile, the estimated coefficient of lagged bilateral perception $PS_{ij,t-1}$ has similar order of magnitude as that of ΔPS_{ijt} but is imprecisely estimated. Thus, this suggests that the lagged country image may not have an independent effect on trade flows once the effect of the immediate change in country image and the country-pair fixed effects are controlled for. This is consistent with the literature discussed in the introduction, where studies found that the effects of contemporary political tensions on consumer sentiments and demand patterns tend to be short-lived (Morrow, Siverson, and Tabares, 1998; Davis and Meunier, 2011; Davis, Fuchs, and Johnson, 2019; Fuchs and Klann, 2013; Mityakov, Tang, and Tsui, 2013; Fisman, Hamao, and Wang, 2014; Du, Ju, Ramirez, and Yao, 2017).

Nonetheless, as discussed above, it is challenging to rely only on the variations within country pairs in the current context, because the majority of variations in PS_{ijt} are variations between country pairs. Given that PS_{ijt} is measured with errors (the sampling errors of the survey), the attenuation bias is worsened when most of the signals in PS_{ijt} are removed by the first-difference in the dynamic panel estimations (see also Angrist and Pischke, 2009, Sec 5.1). The built-in IVs used in the dynamic panel estimations would help remedy the attenuation bias to some extent, but likely not completely. Thus, one might wish to take the insignificance finding of $PS_{ij,t-1}$ with a grain of salt.

Given that the dynamic panel estimator is general enough to accommodate most of our concerns regarding endogeneity, omitted variable bias, and reverse causality, we will use the estimate 0.891 as our focal parameter of interest, which represents the partial direct effect of changes in country image on trade. This is also the key parameter that we will use for the counterfactual welfare analysis in Section 5.

To provide an indication of the importance of consumer preferences, we can try to infer the tariff equivalent of country image. According to the survey of the gravity literature by Head and Mayer (2015), the order of magnitude of trade elasticity ($\sigma - 1$) is around 4 for aggregate trade. This implies that the direct impact of country image on tastes is 0.223 [$\ln b = \gamma/(\sigma - 1)$ in absolute values]. Thus, the increase in the US country image between 2007 and 2011 by about 17.7 percentage points is equivalent to a 3.87% decrease ($= e^{-0.223\times 0.177} - 1$) in its outward trade cost (and a 17.1% increase in its exports).

4.2 Disaggregation of Impacts

4.2.1 By BEC Classification

In this section, we look for evidence that the effects of country image differ across types of goods. First, we use the trade flows at the HS 4-digit level[22] and classify sectors into: (C) consumer goods, (I) intermediate goods, (K) capital goods, (U) not classified, and mixed sectors, based on the UN Broad Economic Categories (BEC). A HS 4-digit sector is considered a sector of consumer goods if all its 6-digit sub-sectors are consumer goods (according to their corresponding BEC codes), and similarly for the classification of intermediate and capital goods. Some sectors are not classified by

[22]This refers to Harmonized System (HS) 2002 Revision nomenclature.

BEC, while mixed sectors contain more than one type of goods (see also Appendix A.4).

We expect the effect of country image on trade to be larger on consumer goods than on intermediate or capital goods, because the affective and normative effects discussed in the introduction are likely to affect end consumers more than business managers who decide on the purchase of intermediate or capital goods, because the latter may be bound by existing contracts or institutions in exercising their discretion. Nonetheless, if the effect of country image is strong enough, it may have a "trickle-down" effect where business managers' sourcing decisions are influenced by their personal preference bias or by the derived demand from end consumers.

We start with the strongest homogeneity assumption, that the coefficients $\{\gamma_k, \boldsymbol{\beta}_k\}$ are common across sectors, but allow for exporter-sector-year and importer-sector-year FEs. Thus, any exporter-sector-year supply-side or importer-sector-year demand-side shocks that are multilateral in nature would be absorbed by these FE terms.[23] The PPML estimation results are reported in Column 1 of Table 9. We find that country image continues to have a significantly positive effect on disaggregated trade flows: for a one-percentage point larger ΔPS_{ijt}, the disaggregated trade flows (in log) increase by 0.548 percentage points on average across all sectors. By repeating the same exercise for each type of goods, we find that the effect of ΔPS_{ijt} is larger for consumer goods (0.798) than for non-consumer goods (0.572 for intermediates, and insignificant for capital goods). This provides some suggestive evidence of a trickle-down effect of country image.

4.2.2 By Rauch Classification

As an alternative classification, we follow Rauch (1999) and classify SITC2 3-digit sectors by: (O) goods that are traded on an organized exchange, (R) goods with reference prices published in trade journals, and (D) differentiated products that are neither (O) nor (R). All SITC2 3-digit sectors are accounted for and assigned to one of the three types of goods classified by Rauch. Column 1 of Table 10 repeats the estimation that imposes the same coefficient across types of goods, and verifies that the effect (0.569) is similar to that in Table 9 based on HS 4-digit sectors.

It is a priori unclear whether the effects of country image on trade should be larger or smaller when product differentiation increases. On the one hand, because homogeneous goods are more substitutable (large $1 - \sigma_k$), for a given change in tastes ($\ln b_{ijkt}$), we expect the impact on trade to be larger on homogeneous goods. On the other hand, the marketing literature suggests that differentiated goods (e.g., home appliances) have a larger extrinsic value attached to the country-of-origin label than homogeneous goods (e.g., oil). Thus, for a given change in country image (ΔPS_{ijt}), consumer tastes are likely to respond more strongly to products produced by different origins for differentiated products (large $\partial \ln b_{ijkt}/\partial \Delta PS_{ijt}$). The net impact of country image on trade flows γ_k [$= (1 - \sigma_k)(\partial \ln b_{ijkt}/\partial \Delta PS_{ijt})$] hence depends on which of these two factors

[23] In equation (7), by definition, the trade flows are normalized by the sectoral-level gross output and expenditure. Because of lack of these two measures, we instead normalize the trade flows by the country-level gross output and expenditure. This helps reduce the scale of the dependent variable and the numerical approximation errors in PPML estimations. Any discrepancy between the country and sectoral levels in gross outputs and expenditures would be absorbed by the exporter-sector-year and importer-sector-year FEs included in the regression.

dominates.

Columns 2–4 of Table 10 suggest that ΔPS_{ijt} has no effect on trade in homogeneous goods, and positive effects on trade in reference-priced goods (0.504) and differentiated goods (0.579). This ranking, where the country image effect on trade flows increases with the degree of product differentiation, suggests that the direct impact of country image on tastes dominates the elasticity effect.

We can try to infer the direct impact of country image on tastes using the elasticity estimates suggested by the literature. By the median estimates of Broda and Weinstein (2006) for 1990–2001, the elasticity of substitution decreases in product differentiation: they are respectively 3.5, 2.9, 2.1 for type O, R, and D goods. This implies that the direct impacts of country image on tastes are [$\gamma_k/(\sigma_k - 1)$ in absolute values]: 0, 0.265, and 0.526 for type O, R, and D goods, respectively.[24] Thus, the observed increase in the US's country image during 2007–2011 (by 17.7 percentage points) is equivalent to a 4.58% decrease ($= e^{-0.265 \times 0.177} - 1$) in trade cost for reference-priced goods and a 8.89% decrease ($= e^{-0.526 \times 0.177} - 1$) in trade cost for differentiated goods. These are large numbers, considering that tariff barriers are on average less than 5% for rich countries, and international transport costs are estimated to be about 21% for the US (Anderson and van Wincoop, 2004).

In summary, we find some indications that the effect of country image on consumer preferences (and trade flows) does differ across types of goods in ways consistent with ex ante expectations: they tend to be stronger for consumer goods than non-consumer goods, and stronger for differentiated goods than homogeneous goods.

4.3 Intra-firm Trade as Placebo Tests

Estimating γ for different goods based on the BEC and Rauch classifications is a useful exercise, as it serves as a kind of placebo test of the consumer preference effects and shows that consumer opinions do not matter for trade in precisely the kinds of goods that one might not expect them to matter (e.g., homogeneous products). In this section, we further look at intra-firm trade as an additional placebo test. As argued in Section 3, one would expect bilateral country image perception to matter less for intra-firm trade across countries (between the parent company and affiliates of multinational companies).

We obtained such intra-firm trade data from the OECD AMNE (Activity of Multinational Enterprises) database. The "inward activity of multinationals" tables in the AMNE database report: (i) imports by affiliates in OECD countries from their foreign parent company, and (ii) exports by affiliates in OECD countries to their foreign parent company. In parallel, the "outward activity of multinationals" tables report: (iii) imports by parent companies in OECD countries from their foreign affiliates, and (iv) exports by parent companies in OECD countries to their foreign affiliates. We use the trade flow reported by the importing country as the default, and supplement this with the trade flow reported by the exporting country if the former is missing. Since the

[24] The effect for goods traded on organized exchanges is taken to be zero because its estimate is statistically insignificant.

reporting countries are OECD countries, intra-firm trade flows between two non-OECD countries are unavailable.

The AMNE dataset changed sector classification in 2008 (with two sectors before 2008: manufacturing and total business enterprise, and with manufacturing and several service sectors starting 2008). We use the values reported for the manufacturing sector only since the concordances for the other sectors between the two regimes are not clearly defined. We consider three intra-firm trade flows: trade flows from affiliates to parent companies, trade flows from parent companies to affiliates, and the sum of these two trade flows from the same exporting country to another destination country.

Unfortunately, the intra-firm trade data as reported at the origin-destination country level are very sparse. The number of observations further drops after we merge the intra-firm trade data with the set of the BBC WSP countries. Table 11 reports the matrix of origin-destination countries with intra-firm trade data during 2005–2014, for trade flows from affiliates to parent companies ($a2h$) and for trade flows from parent companies to affiliates ($h2a$). The limited sample size renders the specification in equation (6) infeasible, so we have to reduce the dimension of fixed effects from (it, jt) to (i, j, t).

The estimation results are reported in Table 12. We find that the effects of country image are insignificant on trade flows from affiliates to parent companies, on trade flows from parent companies to affiliates, or on their combined flows in the same origin-destination direction. This provides some indicative, albeit limited, evidence that bilateral country image perceptions do not matter in international exchanges within multinational companies.[25]

5 Welfare Analysis

In this section, we use the effect estimates of country image identified above as inputs, and conduct counterfactual welfare analysis of major shifts in country image. For example, we compute the Bush and Trump effects by simulating the counterfactual exports and welfare for the US in year 2011 (the peak of the US country image), if each of the US's trading partners were to change their actual ratings of the US in 2011 to the level in 2007 (Bush) or 2017 (Trump), holding the US's own preference parameters unchanged. This simulated welfare effect is then compared to the US's total welfare gains from trade to evaluate the magnitude of importance of country image.

5.1 Conceptual Framework

We build on the aggregate framework introduced in Section 3 and generalize it to allow for trade deficits and intermediates in production. Time subscripts are omitted in the conceptual framework

[25]The coefficient estimates for the other trade cost proxies are sensitive to the sample used, especially the time invariant ones, because they tend to be collinear with the exporter or importer fixed effects given that the reporting countries are basically limited to the US, Japan and Israel.

to simplify exposition. The aggregate budget constraint that allows for trade deficit requires that:

$$E_j = Y_j + D_j, \tag{9}$$

where D_j is the nominal trade deficit of country j. We assume that goods are produced one-to-one from an input bundle, where the input bundle combines labor and intermediate inputs with a constant labor share κ_i. Intermediates comprise the full set of goods, combined according to the CES aggregator in equation (1) as for final demand. This implies that the cost of an input bundle in country i is:

$$c_i = w_i^{\kappa_i} P_i^{1-\kappa_i}. \tag{10}$$

Given that goods markets are perfectly competitive, the supplier price p_i equals the production cost c_i. Finally, labor-market clearing requires that:

$$w_i L_i = \kappa_i Y_i. \tag{11}$$

To proceed with counterfactual analysis of shifts in preferences, we rewrite the system of structural equations (2)–(5) and (9)–(11) in terms of changes à la the hat algebra of Dekle, Eaton, and Kortum (2007). In particular, let x' denote the counterfactual value of a variable x and $\widehat{x} \equiv x'/x$ the ratio of the counterfactual to the actual value of the variable.

The market-clearing condition (2) and perfect competition require the change in the supply share, the change in the cost of the input bundle, and the outward MR for each country to satisfy the following condition:

$$\widehat{s}_i = \widehat{c}_i^{1-\sigma} \widehat{\Pi}_i^{1-\sigma}. \tag{12}$$

The MR structural relationship (4)–(5) and the trade flow equation (3) then require the changes in the MR terms to reflect the changes in preferences and supply/expenditure shares according to:

$$\widehat{\Pi}_i^{1-\sigma} = \sum_j \theta_{ij} \left(\widehat{b}_{ij} / \widehat{P}_j \right)^{1-\sigma} \widehat{e}_j, \tag{13}$$

$$\widehat{P}_j^{1-\sigma} = \sum_i \lambda_{ij} \left(\widehat{b}_{ij} / \widehat{\Pi}_i \right)^{1-\sigma} \widehat{s}_i, \tag{14}$$

where $\theta_{ij} \equiv X_{ij}/Y_i$ is the share of country i's sales that goes to destination j and $\lambda_{ij} \equiv X_{ij}/E_j$ is the share of country j's expenditure that is spent on source i. We follow Caliendo and Parro (2015) and assume that in the counterfactual, a country's trade deficit as a share of world production remains constant: $D_i'/Y_w' = D_i/Y_w = d_i$. This, together with the aggregate budget constraint (9), implies that:

$$\widehat{e}_i \cdot e_i = \widehat{s}_i \cdot s_i + d_i. \tag{15}$$

By the definition of s_i, it follows that:

$$\widehat{s}_i \cdot s_i = \frac{\widehat{Y}_i \cdot Y_i}{\sum_k \widehat{Y}_k \cdot Y_k}. \tag{16}$$

By the Cobb-Douglas cost structure (10), we have:

$$\widehat{c}_i = \widehat{w}_i^{\kappa_i} \widehat{P}_i^{1-\kappa_i}. \tag{17}$$

Finally, by the labor market-clearing condition (11), we have:

$$\widehat{Y}_i = \widehat{w}_i. \tag{18}$$

Using (12)–(18), we can solve for $\left\{\widehat{c}_i, \widehat{\Pi}_i, \widehat{P}_i, \widehat{s}_i, \widehat{e}_i, \widehat{w}_i, \widehat{Y}_i\right\}$ for $i = 1, 2, \ldots, N$, given exogenous changes in the preference parameters $\widehat{b}_{ij}^{1-\sigma}$, observable variables $\{\theta_{ij}, \lambda_{ij}, e_i, s_i, d_i, Y_i\}$ and parameter values $\{1-\sigma, \kappa_i\}$. The welfare effects of given exogenous changes in country image can then be measured by the changes in real income (wages):

$$\widehat{W}_i = \widehat{Y}_i / \widehat{P}_i, \tag{19}$$

and the general equilibrium trade effect by:

$$\widehat{X}_{ij} = \frac{\widehat{b}_{ij}^{1-\sigma}}{\widehat{\Pi}_i^{1-\sigma} \widehat{P}_j^{1-\sigma}} \, \widehat{s}_i \, \widehat{E}_j, \tag{20}$$

where

$$\widehat{E}_j = \frac{Y_j}{E_j} \widehat{Y}_j + \frac{D_j}{E_j} \widehat{Y}_w \tag{21}$$

and $\widehat{Y}_w = \sum_i s_i \widehat{Y}_i$.[26]

We focus on counterfactual scenarios where a country's image shifts in its trading partners' views (e.g., how the rest of the world views the US), while the country's own preference parameters towards its trading partners remain the same. Thus, any changes in the country's welfare are due to the changes in its outward trade flows and multilateral resistance, and not because of the direct impact of shifts in its own preference.

We base our analysis on the dynamic panel estimate of γ ($= 0.891$) in Column 1 of Table 8 for the aggregate trade flows. This implies an effect of $\widehat{b}_{ijt}^{1-\sigma} = \exp(\gamma(PS' - PS_{ijt}))$, if the importing country j's view of the exporting country i in year t were to shift to the level PS' specified by the counterfactual scenario. This effect on $\widehat{b}_{ijt}^{1-\sigma}$ can then be fed into the system (12)–(18) to simulate the effects of country image on welfare (19) and trade flows (20) for the exporting country i.

[26]We could also measure the welfare effects by the change in real expenditures $\widehat{W}_i = \widehat{E}_i / \widehat{P}_i$. But because it is sensitive to the assumption of trade deficit in the counterfactual, we decide to report the welfare effects based on the change in real income (wages). It can also be argued that trade deficit needs to be repaid by the borrowing country in the long run, so real income is a better measure of the long-run welfare of a country.

For the parameters, we use $\sigma = 5$, which implies a trade elasticity of 4, close to the median trade elasticity often reported in the gravity literature for aggregate trade (Head and Mayer, 2015). For the parameter $\{\kappa_{it}\}$, we calculate the share of value added in gross output for each country i and year t, based on the STAN database and WIOD/IOT input-output tables, as explained in Appendix A. The value varies in the range of $[0.32, 0.58]$ across countries and years.

5.2 Welfare Impacts

In the counterfactual analysis, we include all countries in the world where data permit. The number of countries included in the analysis across 2005–2014 is indicated in Table 13. These countries collectively represent above 99.5% of world GDPs and above 99.2% of world trade. Because not all countries are included in the BBC WSP survey, we present results based on three alternative assumptions about the change in the opinions in the rest of the world. In Scenario 1, we assume that the importing countries not included in the BBC WSP as evaluating countries have not changed their opinions regarding the evaluated country. In Scenarios 2 and 3, these countries are assumed to take on, respectively, the mean and median change in the views (of the BBC WSP evaluating countries) against the evaluated country. Scenario 1 is an extremely conservative assumption and its results can be considered as lower-bound estimates. On the other hand, Scenarios 2 and 3 can be regarded as "best" estimates even though the possibility of over-representation (of the prevalence of change in opinions across the globe) cannot be excluded.

We label each exercise by the major factor that we consider of first-order importance and most likely to have caused observed shifts in country image (bearing in mind that there are potentially other confounding factors). Table 14 provides a detailed report of the change in bilateral country image perception for the episodes to be studied.

5.2.1 The George W. Bush and the Donald Trump Effects

As shown in Figure 1, the US country image experienced dramatic improvement from 2007 to 2011, but an equally dramatic reversal from 2011 to 2017. In the first exercise, we compute the welfare effects for the US in 2011 if the views of its trading partners towards the US were to revert to the level prevalent in 2007. We label this exercise the George W. Bush effect (A1), because the public image of the Bush administration was marred by the decision to invade Afghanistan in 2001 and Iraq in 2003 in its declared "War on Terrorism," despite international disapproval. For example, when France and Germany opposed the US-led Iraq War in early 2003, the trans-Atlantic relationship severely worsened.[27] Mr. Obama, being an antiwar candidate who won the Nobel Peace Prize in 2009, helped turn around the US country image. For example, the positive response ratio towards the US in France was 0.46 in 2011 but 0.24 in 2007. Similarly, the positive response ratio towards the US in Germany was 0.37 in 2011 but 0.16 in 2007 (*cf.* Table 14). This implies $\widehat{b}_{ijt}^{1-\sigma} = 0.822$

[27] It was reported that bars and restaurants in several parts of Germany refused to serve/sell Coca-Cola, Budweiser beer, Marlboro cigarettes, and other renowned American brands (The Economist, 2003b).

and 0.829, and thus, 17.8% and 17.1% drops in $b_{ijt}^{1-\sigma}$, respectively, for the US-to-France and the US-to-Germany exports.

The general equilibrium welfare effects taking into account changes in the views of all the US trading partners from the level in 2011 to that in 2007 are reported in Column 1 of Table 15. As a yardstick, Column 2 reports the US's total welfare gains from trade, calculated using the formula of Arkolakis, Costinot, and Rodríguez-Clare (2012, p. 115, the version that allows for intermediates in production). In Column 3, the simulated welfare effect (Column 1) is compared to the US's total welfare gains from trade (Column 2) to evaluate the magnitude of importance of country image. As indicated, the Bush effect cost the country around 7.08–7.24% of its total welfare gains from trade in Scenarios 2 and 3. The general equilibrium effect on the US exports of around 8.52–8.73% (reported in Column 4) is much smaller than the direct effect indicated above. This is due to the fact that the increase in the US outward multilateral resistance ($\Pi_{it}^{1-\sigma} \downarrow$) due to worsened country image partly offsets its direct trade effect ($b_{ijt}^{1-\sigma} \downarrow$) in equation (20). Figure 6 illustrates the effect on the US bilateral exports to each of its trading partners given the change in its country image across exporting destinations (based on Scenario 2). We see from Table 14 that Brazil, Indonesia, South Korea, Chile and Turkey were especially against the Bush relative to the Obama administration, followed by France, Germany, and Russia. This is reflected in the sharp drop in US exports to these destinations. In contrast, Kenya, Nigeria, and China had a relatively mild change in their views towards the US during 2007–2011. As a result, trade was diverted to these destinations (where the drop in $b_{ijt}^{1-\sigma}$ is less than the drop in $\Pi_{it}^{1-\sigma}$). The increased exports to China helped cushion some of the negative overall impact.

The Bush administration's globally-unpopular "War on Terrorism" likely led not only to a worsening of the US image, but also to a deterioration of the image of countries that were supportive of the war (e.g., the UK) and a possible improvement of the image of countries that were opposed to it (e.g., France and Germany). The extent to which changes in consumer preferences resulting from the war are correlated across countries could then either dampen or amplify the effects on US trade flows and welfare due to demand substitution patterns across countries. In counterfactual A2, we take into account simultaneous changes in the country images of the US, the UK, France, and Germany during 2007–2011. Table 16 provides the details of the changes in these other countries' images in addition to the US. Table 15 and Figure 7 indicate that the impacts on the US in terms of welfare and exports are very similar to counterfactual A1 (where only the country image of the US changes). This could be due to the fact that the other three major countries did not sustain as dramatic shifts in their country images as the US during 2007–2011. In fact, all four countries were viewed more negatively by the rest of the world on average, although less so for France and Germany. Scenarios 2 and 3 indicate that the US exports suffered a slightly bigger hit than in counterfactual A1, but the output drop was cushioned by a corresponding drop in the US general prices such that the overall welfare impacts on the US turned out to be smaller than in counterfactual A1. Thus, taking into account worsened country images of the other three countries (of lesser extents) moderates the implied welfare impacts on the US, but marginally so.

We next conduct a similar exercise for the US in 2011 using the 2017 ratings of the US by its trading partners as the counterfactual. We label this scenario the Donald Trump effect, due to the outcome of the US presidential election in November 2016. During his presidential campaign, Trump pledged to implement many controversial policies, including halting Muslims' entry into the US, withdrawal from the Paris Climate Agreement, building a US-Mexico border wall, withdrawal from the Trans-Pacific Partnership, and renegotiating or withdrawal from the North American Free Trade Agreement. These anti-globalization rhetorics can be summed up by his America First Foreign Policy[28] and had drawn waves of criticism from both home and abroad even before he took office in January 2017.

Table 14 indicates that on average, the decline in the favorable ratings of the US between 2011 and 2017 was less acute than in the Bush era. As a result, the Trump effect is smaller than the Bush effect, costing the US about 3.70–3.98% of its total welfare gains from trade (*cf.* Table 15). This smaller welfare effect masks some important heterogeneity in views towards the Trump administration. The biggest drops in views towards the US between 2011 and 2017 occurred in Russia (0.38 to 0.07), Indonesia (0.58 to 0.27), Spain (0.41 to 0.16), and Brazil (0.64 to 0.42). But among the major trading partners of the US, the shift in opinions was less dramatic (e.g., 0.40 to 0.34 in Canada, 0.46 to 0.37 in France, and 0.46 to 0.33 in the UK). In fact, China maintained the same view towards the US (0.33) while Mexico became more favorable towards the US (0.23 to 0.29). This is in contrast with the Bush effect, where the worsened view of the US was shared among most of its major trading partners. The impacts on the US exports to each of its destinations are illustrated in Figure 8. The effects are in general 'warmer' in the Trump era than the Bush era, with the notable exception of Russia, whose view of the US deteriorated much more significantly during 2011–2017 than in the previous episode.

A final remark is in order. To be fair, the US country image started its slide during the second term of the Obama administration, accounting for about half of the decline during 2011–2017. Thus, the effects identified above are partly attributable to the Obama administration.

5.2.2 The China-Japan Senkaku-Islands Dispute Effects

As discussed in Section 2, the Senkaku-Islands Dispute in late 2012 between China and Japan reignited the longstanding anti-Japanese sentiment in China. The response by the Chinese government of demonstrating military power in the disputed sea area, and by the Chinese protesters inflicting damage on Japanese businesses across China, escalated the political tension in East Asia and raised concerns in the US and the rest of the world about impending armed conflict in the region (Manyin, 2016). This event was also seen by observers as part of China's aim to dominate the East and South China Sea, expanding its maritime boundaries. These developments did not bode well for the Chinese country image, as manifested by a sharp drop in its rating between 2012 and 2013 (*cf.* Figure 1 and Table 14). Except for some Latin American and African countries, most evaluating countries lowered their ratings of China during 2012–2013. The worsened attitude

[28] `https://www.whitehouse.gov/america-first-foreign-policy`.

toward China was especially pronounced for countries in the region and US allies. In the counterfactual exercise, we analyze the effects of these negative shifts in bilateral perceptions on the welfare and trade of China in 2012.

Counterfactual C1 of Table 15 indicates that the welfare effect on China due to the sheer change in its country image during 2012–2013 amounted to a reduction of 2.22–2.34% of its total gains from trade; the total net loss in exports had similar magnitudes (3.18–3.34%). Figure 9 indicates that the strongest negative trade effects were concentrated in Chinese exports to the major G7 countries. Note that the Chinese exports to Russia and Mexico increased, although the two countries' views of China worsened. This is due to the fact that the downward revision in the two countries' ratings of China during 2012–2013, by 0.04 (Russia) and 0.06 (Mexico), was small in magnitudes relative to those of Australia (0.25), Canada (0.24) and Germany (0.29). Thus, in this case, the direct effect of decrease in $b^{1-\sigma}_{China,Russia}$ was more than offset by the decrease in multilateral effects ($\Pi^{1-\sigma}_{China} \downarrow$), and as a result, Chinese exports in fact would be diverted towards Russia (and Mexico, similarly).

During the dispute, the Japanese rating slid as well between 2012 and 2013, by about 6 percentage points, as indicated by Figure 1 and Table 16. In counterfactual C2, we take into account the simultaneous changes in the country images of China and Japan, and re-examine the impacts on China's welfare and exports. Table 15 indicates that the impacts on China were marginally smaller in terms of both welfare and exports once changes in Japan's country image are also taken into account. Thus, the simultaneous worsening of Japan's country image mitigated the blow to Chinese exports, as both countries' exports faced increased outward resistance, which reduced the scope of substitution away from Chinese goods toward Japanese goods. Figure 10 indicates a pattern of effects on Chinese bilateral exports very similar to Figure 9.

5.2.3 The Brexit Effects

The UK's Brexit decision reached in June 2016 had many potential ramifications. Among them, Figure 1 indicates that the UK's country image took a hit between 2014 and 2017. The negative feeling towards the UK was naturally acute among the EU member countries, such as Germany (0.51 in 2014 to 0.35 in 2017) and France (0.72 to 0.63), but it was also shared by countries outside the union such as Brazil (0.45 to 0.33), India (0.43 to 0.33), and Russia (0.44 to 0.24). China is clearly an outlier, which almost doubled its favorable rating of the UK between 2014 and 2017 (0.39 to 0.73). This obviously brought up the average rating of the UK relative to the median (*cf.* Table 14). As a result, the negative welfare effect of Brexit is less severe in Scenario 2 (when the rest of the world is assumed to take on the mean change in opinions) than in Scenario 3 (when the rest of the world is assumed to take on the median change in opinions). Based on the latter, Brexit via the country image effect alone cost the UK close to 2.22% of its total welfare gains from trade in 2014 and 2.64% in total exports, as indicated in Table 15. Figure 11 illustrates the diversion of British exports to China, Australia, and Mexico (where its country image improved), away from Russia, Germany, and Brazil (where its country image worsened).

5.2.4 The Good-Boy Canadian Effects

Between 2010 and 2017, Canada's country image was consistently on the rise from its already superior ranking, and in 2017 supplanted Germany at the top of the list. The increment was especially significant in the UK (0.62 to 0.94), Mexico (0.37 to 0.69), China (0.54 to 0.82), and the US (0.67 to 0.87), all of them among its most important trading partners. The country projected itself as socially liberal yet fiscally conservative (The Economist, 2003a, 2005); it was the world's tenth-largest economy but counted for less as a military power (The Economist, 2016d). It continued to maintain a generally open door policy to trade and immigrants, even while they were shunned by the US and the EU (The Economist, 2011, 2016c). The swearing-in of Prime Minister Justin Trudeau in November 2015 appears to have affirmed all these positive images and more. For example, the Canadian prime minister played a more constructive role in international climate talks than his predecessor and obtained ratification of the Paris agreement in December 2015 (The Economist, 2016a,d). His growth-promoting economic policies such as increased investment in infrastructure also won plaudits from the IMF, World Bank, and the G20 (The Economist, 2016e). These help explain the significant increase in the favorable ratings of Canada between 2014 and 2017.

We analyze the effects of such image enhancement for Canada in 2010 if its ratings by its trading partners were to rise to the 2017 level (*cf.* Table 14). Table 15 shows that the positive welfare effects are substantial, contributing to 8.45–8.47% of its total gains from trade. The effects on its exports are similarly significant at more than 10%. Relative to Scenarios 2 and 3, the effects in Scenario 1 are lower by only a small margin when the rest of the world is assumed not to have improved their opinions towards Canada during 2010–2017. This is due to the fact that Canada's trade is highly concentrated among the countries that increased their favorable ratings of Canada. Figure 12 shows that Canadian exports to Mexico and the UK would increase by more than 20%, to China by more than 15%, and to the US by more than 10%. There are however exceptions; for example, German and Russian people lowered their ratings of Canada. This implies a drop of Canadian exports to each of these two countries by more than 10%.

5.3 Standard Errors for Counterfactual Results

We now report confidence intervals for the general equilibrium effects of country image on welfare and trade flows. Errors in the counterfactual predictions for welfare gains and trade flows could stem from two sources: sampling error in the BBC WSP survey data, or standard errors from the estimation of γ in the gravity trade equation.

For each scenario of welfare analysis (such as the George W. Bush effects), we implement four alternative approaches to simulate the standard errors for counterfactual effects. The first and second address the uncertainty associated with the measure of PS_{ijt} due to sampling error; the third and fourth address the uncertainty associated with γ. The data source does not provide the response of each individual in each country, but only the aggregate statistic PS_{ijt} corresponding to the proportion of individuals in country j who view country i positively in year t (and similarly for

NG_{ijt}, NU_{ijt} and NA_{ijt}). Hence, resampling at the individual level is not feasible. Instead, in the first two approaches, we need to make assumptions about the distribution of PS_{ijt}, using either the standard errors implied by the assumption of independent Bernoulli trials or by the margin of error found in the data source documentation.

First, we assume that PS_{ijt} is the mean of n_{jt} independent Bernoulli trials with success probability pr_{ijt} and standard error equal to $\sqrt{pr_{ijt}(1-pr_{ijt})/n_{jt}}$, where n_{jt} is the sample size of the survey in country j in year t.[29] We use the implied distribution of ΔPS_{ijt} with normal approximations,[30] and draw 400 random realizations of ΔPS_{ijt} for each ij (the period over which the difference ΔPS_{ijt} is taken is fixed by the scenario; for example, it is 2007 and 2011 for the Bush effects). Given γ, these produce 400 simulated counterfactual equilibria, based on which the 95% lower and upper bounds of the welfare (and trade) effects are obtained.

Second, we use the margin of error provided by the BBC World Service Poll documentation. For example, it states that "the margin of error per country ranges from +/− 2.5 to 6.1 per cent, 19 times out of 20" in 2014 and "the margin of error per country ranges from +/− 3.1 to 5.2 per cent, 19 times out of 20" in 2017. Thus, the margin of error is not provided specifically for each country in each year. We take +/− 6% to be a very conservative margin of error (among the largest across countries and years of surveys where such information is provided) and use it in the simulations. Specifically, PS_{ijt} is assumed to be distributed normally with a standard error of at most 3 percentage points for all ijt. We then proceed in similar ways as in the first approach (drawing 400 random realizations of ΔPS_{ijt} for each ij given the implied distribution, and generating 400 simulated counterfactual equilibria given γ) to obtain the 95% lower and upper bounds of the welfare and trade effects.

In the third approach, we use the lower and upper bounds of the 95% confidence interval of γ and generate the counterfactual equilibria given these two values and the factual ΔPS_{ijt}. In the fourth approach, we instead assume that γ is normally distributed and simulate 400 pseudo γ values given the estimates of mean and standard error. The 95% lower and upper bounds of the counterfactual effects are obtained from the distribution of the 400 simulations.

Tables 17 and 18 report the 95% confidence intervals (CIs) for the welfare effect and the trade effect, respectively. We find that the CIs based on the first and second approaches (to address sampling errors in PS_{ijt}) are both very narrow. For example, the 95% CIs for the Bush effects on the US welfare in Scenario 2 are $[-0.243, -0.210]$ based on the first approach and $[-0.260, -0.193]$ based on the second approach. In parallel, the 95% CIs for the Bush effects on US exports in Scenario 2 are $[-9.277, -8.095]$ and $[-9.934, -7.469]$, respectively. Similar observations can be

[29] If n_{jt} is missing, we replace the missing entry with the average of $n_{jt'}$ for available years t'. This is a reasonable approximation since the sample size of the survey is relatively stable across years within each evaluating country.

[30] The distribution of ΔPS_{ijt} has a mean of $PS_{ij,t1} - PS_{ij,t0}$ and standard error of $\sqrt{var(PS_{ij,t1}) + var(PS_{ij,t0}) - 2\,cov(PS_{ij,t1}, PS_{ij,t0})}$. The documentation of the survey does not clearly indicate whether the individuals surveyed were independently drawn across years, or were repeated across years. We make the conservative assumption that the covariance between $PS_{ij,t1}$ and $PS_{ij,t0}$ is zero. To the extent that country image measures are positively correlated across years due to repeated sampling, the implied standard error for ΔPS_{ijt} is reduced. Thus, under the assumption of zero correlation, the standard error for ΔPS_{ijt} and the imputed confidence intervals for the counterfactual effects might be overstated.

made for the other episodes studied. Thus, taking into account sampling errors of PS_{ijt} does not invalidate the overall conclusion of significant welfare and trade impacts due to shifts in the country images. Next, by using the third and fourth approaches (to address estimation errors of γ), we find the CIs are wider relative to the first two approaches. For example, the corresponding Bush welfare effects have 95% CIs of $[-0.403, -0.037]$ and $[-0.401, -0.043]$ given the third and fourth approaches, respectively, while the export effects fall into the ranges of $[-15.480, -1.288]$ and $[-15.415, -1.514]$, respectively, 95% of the time. Thus, the uncertainties about the welfare and trade effects are larger considering the estimation errors of γ than the sampling errors of PS_{ijt}. Bear in mind that we started with a relatively conservative point estimate of γ. Overall, all the 95% CIs still exclude zeros. Thus, our discussion of the impacts remains qualitatively valid and statistically significant.

5.4 Discussion

5.4.1 Country Image versus Leadership

In the welfare analysis above, we labeled each exercise by the major factor that we consider of first-order importance and most likely to have caused observed shifts in country image. For example, we associated the shifts in the US country image with its president (Bush, Obama, or Trump) and, to a lesser extent, shifts in the Canadian country image with its prime minister (Trudeau). There are potentially many factors that collectively shape a country's image, although its leadership may be a significant cause.

We source from the Gallup World Poll, whose annual surveys (2006–) include the following question: "Do you approve or disapprove of the job performance of the leadership of country xxx?" We find the US leadership approval rating and the US country image to have similar general trend, but the US leadership approval rating peaked in 2009 while the US country image peaked in 2011 (based on averages across evaluating countries that are common across the two datasets). The patterns are similar when looking at the non-negative country image and the leadership non-disapproval rate of the US.

We also compute the correlation between the country image and the leadership approval rating across jt (that are common across the two datasets) for a set of core countries (which are included in the leadership question consistently across years).[31] We do the same for the negative country image and the leadership disapproval rating. We find the correlations to be very high for the US, as shown in Table A.10. They are also high for the other major countries (except Russia in the case of positive response). It could be that these countries' leaders are relatively well known and publicized in the mass media such that people in other countries tend to associate these leaders with their countries closely (justified or not). This is less likely to be the case for countries whose political leaders are less well known.

[31] For example, the survey sample size of the leadership question for France, Japan, and Canada was irregularly small in years after 2010, in 2015, and in years except 2008–2010, respectively.

5.4.2 Cost of Maintaining Positive Image

In the welfare analysis above, we demonstrated the benefits of maintaining positive country image. Some may argue that positive image is not without cost. To gauge the cost-benefit ratio of maintaining good country image, we calculate, for a counterfactual scenario, the pecuniary gain in real income $\left(\frac{\widehat{w}}{\widehat{P}} - 1\right) * \frac{Y}{P}$ where the term in the brackets represents the percentage increase in real income due to the change in country image (as presented in Table 15) and the second term the real income of the country in the benchmark year (for which the counterfactual equilibrium is simulated). We then compare this to the change in the amount of international aid (in real terms) that the country provided to the international community. Data on aid are obtained from "Aid-Data," a research lab at the William & Mary Global Research Institute (see also Appendix A.13). Because the aid data are available up to 2013, we can only carry out the comparison for the George W. Bush effects and the Senkaku-Islands Dispute effects, which involve periods up to 2013.

Table A.11 summarizes the results. We find that the benefits of maintaining country image are an order of magnitude larger than the pecuniary costs of aid. For example, the worsened country image from the level of 2011 to that of 2007 implies a pecuniary loss of US$ 35.39 billion in Scenario 2. Meanwhile, the cost to the US of providing aid to the international community was US$ 2.90 billion lower in 2007 relative to 2011. This implies a net loss of US$ 32.49 billion. Similarly, in the case of the Senkaku-Islands Dispute effects, the welfare loss to China is an order of magnitude (US$ 13.77 billion) larger than changes in international aid (US$ 1.04 billion) donated by the Chinese government between 2012 and 2013. In this particular case, the Chinese country image worsened despite an increase in the aid the Chinese provided to other countries, because of the gravity of the dispute. Nonetheless, the exercise serves to provide a perspective on the order of magnitude of potential pecuniary gains (relative to costs) of maintaining positive country images. Of course, there might be other forms of non-pecuniary costs of maintaining positive country image, but this is beyond the scope of this paper.

6 Conclusion

This paper identifies the preference bias in demand across time and country pairs by exploiting variations in the bilateral country image perceptions derived from the BBC World Service Poll. As documented, preference biases are not static and can respond to contemporary political, economic and social events. They also exhibit significant bilateral variations across country pairs and multilateral variations across evaluated and evaluating countries. The presence of such preference bias is shown by counterfactual analysis to have quantitatively significant economic impacts on a country's export distribution (across destinations) and on its aggregate income and welfare (via shifts in its multilateral outward resistance). For example, the improving Canadian country image during 2010–2017 is estimated to amount to 8.5% of its total welfare gains from trade and contributes to increase its total exports by more than 10%.

These findings have interesting policy implications. We are in a world where tariffs have been lowered by the GATT/WTO multilateral trade talks to relatively low levels, and its members find it difficult to push for further trade liberalization. Meanwhile, technological innovations have significantly reduced transportation/communication costs, making it challenging to reduce trade cost further. Against this backdrop, consumer preferences stand out as a target that countries can try to influence with relatively large economic gains, at perhaps relatively low cost. Behaving responsibly as a good global citizen (to build country image equity) may just prove to be self-rewarding. It also implies that international political calculus needs to take these economic impacts into consideration.

References

Agence France Presse, 2008. Dumpling scare should not harm Japan-China ties: Ministers. February 10, 2008.

Anderson, J. E., van Wincoop, E., 2003. Gravity with gravitas: A solution to the border puzzle. American Economic Review 93 (1), 170–192.

Anderson, J. E., van Wincoop, E., 2004. Trade costs. Journal of Economic Literature 42 (3), 691–751.

Angrist, J. D., Pischke, J.-S., 2009. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press, New Jersey.

Arellano, M., Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies 58, 277–297.

Arkolakis, C., Costinot, A., Rodríguez-Clare, A., 2012. New trade models, same old gains? American Economic Review 102 (1), 94–130.

Armington, P. S., 1969. A theory of demand for products distinguished by place of production. IMF Staff Papers 16 (1), 159–178.

Ashenfelter, O., Ciccarella, S., Shatz, H. J., 2007. French wine and the U.S. boycott of 2003: Does politics really affect commerce? Journal of Wine Economics 2 (1), 55–74.

Blundell, R., Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87, 115–143.

Broda, C., Weinstein, D. E., 2006. Globalization and the gains from variety. Quarterly Journal of Economics 121 (2), 541–585.

Caliendo, L., Parro, F., 2015. Estimates of the trade and welfare effects of NAFTA. Review of Economic Studies 82, 1–44.

Chang, P.-L., Fujii, T., 2012. Country image and international trade. SMU Economics & Statistics Working Paper Series No. 29-2012.

Chang, P.-L., Lee, I. H., 2020. Influence of foreign popular culture on international trade: Evidence from the Korean Wave, Singapore Management University, manuscript, 2020 February.

Chao, P., 1998. Impact of country-of-origin dimensions on product quality and design quality perceptions. Journal of Business Research 42 (1), 1–6.

Chavis, L., Leslie, P., 2009. Consumer boycotts: The impact of the Iraq war on French wine sales in the U.S. Quantitative Marketing and Economics 7, 37–67.

Che, Y., Du, J., Lu, Y., Tao, Z., 2015. Once an enemy, forever an enemy? The long-run impact of the Japanese invasion of China from 1937 to 1945 on trade and investment. Journal of International Economics 96 (1), 182–198.

Cheah, I., Phau, I., Kea, G., Huang, Y. A., 2016. Modelling effects of consumer animosity: Consumers' willingness to buy foreign and hybrid products. Journal of Retailing and Consumer Services 30, 184–192.

Clarke, D., 2014. PLAUSEXOG: Stata module to implement Conley et al's plausibly exogenous bounds. Statistical Software Components S457832, Boston College Department of Economics, revised 08 Jul 2020.

Combes, P.-P., Lafourcade, M., Mayer, T., 2005. The trade-creating effects of business and social networks: Evidence from France. Journal of International Economics 66 (1), 1–29.

Conley, T. G., Hansen, C. B., Rossi, P. E., 2012. Plausibly exogenous. Review of Economics and Statistics 94 (1), 260–272.

Cordell, V., 1991. Competitive context and price as moderators of country of origin preferences. Journal of the Academy of Marketing Science 19 (2), 123–128.

Davis, C. L., Fuchs, A., Johnson, K., 2019. State control and the effects of foreign relations on bilateral trade. Journal of Conflict Resolution 63 (2), 405–438.

Davis, C. L., Meunier, S., 2011. Business as usual? Economic responses to political tensions. American Journal of Political Science 55 (3), 628–646.

Dekle, R., Eaton, J., Kortum, S., 2007. Unbalanced trade. American Economic Review 97 (2), 351–355.

Disdier, A.-C., Mayer, T., 2007. Je t'aime, moi non plus: Bilateral opinions and international trade. European Journal of Political Economy 23, 1140–1159.

Du, Y., Ju, J., Ramirez, C. D., Yao, X., 2017. Bilateral trade and shocks in political relations: Evidence from China and some of its major trading partners, 1990–2013. Journal of International Economics 108, 211–225.

Felbermayr, G. J., Toubal, F., 2010. Cultural proximity and trade. European Economic Review 54, 279–293.

Fisman, R., Hamao, Y., Wang, Y., 2014. Nationalism and economic exchange: Evidence from shocks to Sino-Japanese relations. The Review of Financial Studies 27 (9), 2626–2660.

Fouka, V., Voth, H.-J., 2016. Reprisals remembered: German-Greek conflict and car sales during the Euro crisis, Stanford Center for International Development Working Paper No. 587.

Fuchs, A., Klann, N.-H., 2013. Paying a visit: The Dalai Lama effect on international trade. Journal of International Economics 91, 164–177.

Godey, B., Pederzoli, D., Aiello, G., Donvito, R., Chan, P., Oh, H., Singh, R., Skorobogatykh, I. I., Tsuchiya, J., Weitz, B., 2012. Brand and country-of-origin effect on consumers' decision to purchase luxury products. Journal of Business Research 65 (10), 1461–1470.

Gründler, K., Krieger, T., 2016. Democracy and growth: Evidence from a machine learning indicator. European Journal of Political Economy 45 (1), 85–107.

Gründler, K., Krieger, T., 2021. Using machine learning for measuring democracy: A practitioner's guide and a new updated dataset for 186 countries from 1919 to 2019. European Journal of Political Economy, available online 17 May 2021.

Guiso, L., Sapienza, P., Zingales, L., 2009. Cultural biases in economic exchange? Quarterly Journal of Economics 124 (3), 1095–1131.

Hallak, J. C., 2006. Product quality and the direction of trade. Journal of International Economics 68, 238–265.

Harmeling, C. M., Magnusson, P., Singh, N., 2015. Beyond anger: A deeper look at consumer animosity. Journal of International Business Studies 46, 676–693.

Head, K., Mayer, T., 2015. Gravity Equations: Workhorse, Toolkit, and Cookbook. Vol. 4 of Handbook of International Economics. North-Holland, Ch. 3, pp. 131–196.

Head, K., Mayer, T., Ries, J., 2010. The erosion of colonial trade linkages after independence. Journal of International Economics 81 (1), 1–14.

Heilmann, K., 2016. Does political conflict hurt trade? Evidence from consumer boycotts. Journal of International Economics 99, 179–191.

Hong, C., Hu, W.-M., Prieger, J. E., Zhu, D., 2011. French automobiles and the Chinese boycotts of 2008: Politics really does affect commerce. The B.E. Journal of Economic Analysis & Policy 11 (1), Article 26.

Hu, Y., Wang, X., 2010. Country-of-origin premiums for retailers in international trades: Evidence from eBay's international markets. Journal of Retailing 86 (2), 200–207.

Huang, Y.-A., Phau, I., Lin, C., 2010. Consumer animosity, economic hardship, and normative influence: How do they affect consumers' purchase intention? European Journal of Marketing 44 (7/8), 909–937.

Insch, G. S., McBride, J., 2004. The impact of country-of-origin cues on consumer perceptions of product quality: A binational test of the decomposed country-of-origin construct. Journal of Business Research 57 (3), 256–265.

John, A., Klein, J., 2003. The boycott puzzle: Consumer motivations for purchase sacrifice. Management Science 49 (9), 1196–1209.

Khandelwal, A. K., 2010. The long and short (of) quality ladders. Review of Economic Studies 77, 1450–1476.

Klein, J. G., Ettenson, R., Morris, M. D., 1998. The animosity model of foreign product purchase: An empirical test in the People's Republic of China. Journal of Marketing 62, 89–100.

Little, J. P., Little, E., Cox, K. C., 2009. U.S. consumer animosity towards Vietnam: A comparison of generations. Journal of Applied Business Research 25 (6), 13–22.

Manyin, M. E., 2016. The Senkakus (Diaoyu/Diaoyutai) dispute: U.S. treaty obligations. Congressional Research Service Report, R42761, October 14, 2016.

Mertens, R., 2016. From gloomy to glad, Europeans respond to Brexit vote. Financial Times, August 4, 2016.

Michaels, G., Zhi, X., 2010. Freedom fries. American Economic Journal: Applied Economics 2, 256–281.

Mityakov, S., Tang, H., Tsui, K. K., 2013. International politics and import diversification. The Journal of Law & Economics 56 (4), 1091–1121.

Montiel Olea, J. L., Pflueger, C. E., 2013. A robust test for weak instruments. Journal of Business and Economic Statistics 31, 358–369.

Moore, M., 2012. China sends 1,000 boats armada to disputed island chain. The Telegraph, September 17, 2012.

Morrow, J. D., Siverson, R. M., Tabares, T. E., 1998. The political determinants of international trade: The major powers, 1907–90. American Political Science Review 92 (3), 649–661.

Nijssen, E. J., Douglas, S. P., 2004. Examining the animosity model in a country with a high level of foreign trade. International Journal of Research in Marketing 21, 23–38.

Obermiller, C., Spangenberg, E., 1989. Exploring the effects of country-of-origin labels: An information processing framework. Advances in Consumer Research 16, 454–459.

Pandya, S. S., Venkatesan, R., 2016. French roast: Consumer response to international conflict—evidence from supermarket scanner data. Review of Economics and Statistics 98 (1), 42–56.

Perlez, J., 2012. China accuses Japan of stealing after purchase of group of disputed islands. The New York Times, September 11, 2012.

Rauch, J. E., 1999. Networks versus markets in international trade. Journal of International Economics 48 (1), 7–35.

Rose, A. K., 2016. Like me, buy me: The effect of soft power on exports. Economics & Politics 28 (2), 216–232.

Silva, J. M. C. S., Tenreyro, S., 2006. The log of gravity. Review of Economics and Statistics 88 (4), 641–658.

Teoh, S. H., Welch, I., Wazzan, C. P., 1999. The effect of socially activist investment policies on the financial markets: Evidence from the South African boycott. Journal of Business 72 (1), 35–89.

The Economist, 2003a. Canada's new spirit. September 25, 2003.

The Economist, 2003b. Don't buy American: Some anti-war Germans are boycotting American goods. April 12, 2003.

The Economist, 2005. Canada's wintry election. December 1, 2005.

The Economist, 2011. The United States v Canada: Why the differing views on immigration? May 20, 2011.

The Economist, 2015. Putin the uniter. Jun 18th 2015.

The Economist, 2016a. Canada's prime minister secures a deal for a national carbon price. December 15, 2016.

The Economist, 2016b. A hollow superpower. March 19th 2016.

The Economist, 2016c. The last liberals: Why Canada is still at ease with openness. October 29, 2016.

The Economist, 2016d. Trudeaumania 2. March 3, 2016.

The Economist, 2016e. Why Canada's economic policy is winning fans: Justin Trudeau is going against conventional wisdom. July 8, 2016.

The Wall Street Journal, 2012. China's nationalist furies. September 25, 2012.

Verlegh, P. W., Steenkamp, J.-B. E., 1999. A review and meta-analysis of country-of-origin research. Journal of Economic Psychology 20, 521–546.

Voigt, K., 2012. Panasonic closes China plants after violent protests. CNN, September 17, 2012.

Table 1: The list of evaluating and evaluated countries in the BBC WSP survey.

	Evaluated Countries (Years appearing in the survey)	Evaluating Countries (Years appearing in the survey)
Brazil (BRA)	2008-2014, 2017	2005-2008, 2010-2014, 2017
Canada (CAN)	2005-2007, 2009-2014, 2017	2005-2014, 2017
China (CHN)	2005-2014, 2017	2005-2014, 2017
France (FRA)	2005-2014, 2017	2005-2014, 2017
Germany (DEU)	2008-2014, 2017	2005-2014, 2017
India (IND)	2006-2014, 2017	2005-2014, 2017
Iran (IRN)	2006-2014, 2017	
Israel (ISR)	2007-2014, 2017	2014
Japan (JPN)	2006-2014, 2017	2005, 2008-2014
North Korea (PRK)	2007-2014, 2017	
Pakistan (PAK)	2008-2014, 2017	2010-2014, 2017
Russia (RUS)	2005-2014, 2017	2005-2014, 2017
South Africa (ZAF)	2009-2014, 2017	
South Korea (KOR)	2010-2014, 2017	2005-2008, 2010-2014
United Kingdom (GBR)	2005-2014, 2017	2005-2014, 2017
United States (USA)	2005-2014, 2017	2005-2014, 2017
Argentina (ARG)		2014
Australia (AUS)		2005-2014, 2017
Chile (CHL)		2005-2014
Ghana (GHA)		2006, 2008-2014
Greece (GRC)		2013, 2017
Indonesia (IDN)		2005-2014, 2017
Kenya (KEN)		2006-2014, 2017
Mexico (MEX)		2005-2014, 2017
Nigeria (NGA)		2006-2014, 2017
Peru (PER)		2011-2014, 2017
Spain (ESP)		2005-2006, 2008-2014, 2017
Turkey (TUR)		2005-2011, 2013-2014, 2017

Note: We excluded non-countries such as the European Union as an evaluated target.

Table 2: Number of evaluated/evaluating countries and their shares of world GDP/population/trade.

	Evaluated Country				Evaluating Country				Combined			
Year	# Country	% GDP	% Pop	% Exports	# Country	% GDP	% Pop	% Imports	# Country	% GDP	% Pop	% Bilateral Trade
2005	6	46.6	29.2	32.7	17	75.8	61.0	60.1	17	75.8	61.0	20.3
2006	9	57.9	49.6	39.7	19	66.8	61.9	55.9	21	76.1	65.0	22.8
2007	10	56.8	49.6	39.6	17	64.3	60.9	52.3	20	73.0	64.0	21.6
2008	12	62.1	55.4	46.5	20	73.6	63.7	59.0	23	74.8	67.3	25.8
2009	14	66.6	56.5	50.2	18	70.2	59.9	55.3	23	74.8	67.2	26.6
2010	15	67.9	57.0	53.1	21	75.1	65.8	60.5	24	76.7	67.8	31.3
2011	15	67.7	56.8	52.1	22	75.1	66.1	61.1	25	76.8	68.0	31.1
2012	15	68.0	56.6	52.1	21	74.4	64.9	60.4	24	76.1	66.8	30.7
2013	15	67.6	56.4	51.7	23	75.7	66.0	60.9	26	77.2	67.9	30.7
2014	15	68.0	56.2	52.2	24	76.7	66.4	61.0	26	77.7	68.2	31.1

Note: A country is included in the sample in a year if its GDP data are not missing, and its entries of PS and NG (as an evaluated or evaluating country) are available with respect to at least one trading partner. North Korea is dropped from the sample because we do not have reliable GDP figures and other key statistics for it. "% Exports" refers to the total exports of the evaluated countries to the world as a fraction of the total world exports. "% Imports" refers to the total imports of the evaluating countries from the world relative to the total world imports. "% Bilateral Trade" refers to the total bilateral imports of observations with non-missing PS_{ijt} as a fraction of the total world imports.

Table 3: OLS/PPML estimation results for aggregate trade flows.

	OLS	OLS	OLS	OLS	OLS	OLS	PPML	PPML	PPML	PPML	PPML	PPML
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PS_{ijt}	1.359***	1.435***	1.435***	1.453***	1.436***		1.194***	1.310***	1.314***	1.326***	1.324***	
	(0.487)	(0.462)	(0.462)	(0.464)	(0.463)		(0.330)	(0.285)	(0.284)	(0.284)	(0.283)	
ΔPS_{ijt}						1.145***						1.085***
						(0.346)						(0.234)
$PS_{ij,t-1}$						1.676***						1.432***
						(0.548)						(0.322)
$LogDist_{ij}$	-0.781***	-0.819***	-0.819***	-0.814***	-0.822***	-0.827***	-0.591***	-0.766***	-0.768***	-0.761***	-0.764***	-0.777***
	(0.148)	(0.091)	(0.091)	(0.090)	(0.093)	(0.092)	(0.107)	(0.064)	(0.064)	(0.064)	(0.064)	(0.063)
$ComLang_{ij}$	0.537***	0.533***	0.534***	0.533***	0.533***	0.563***	0.498***	0.579***	0.581***	0.593***	0.591***	0.580***
	(0.177)	(0.167)	(0.167)	(0.167)	(0.167)	(0.177)	(0.133)	(0.133)	(0.132)	(0.134)	(0.135)	(0.133)
$ComLeg_{ij}$	-0.043	-0.032	-0.031	-0.038	-0.034	-0.055	0.043	0.055	0.057	0.056	0.057	0.040
	(0.175)	(0.162)	(0.162)	(0.164)	(0.164)	(0.171)	(0.109)	(0.103)	(0.102)	(0.101)	(0.102)	(0.105)
$Exheg_{ij}$	0.248	0.261	0.259	0.293	0.272	0.245	0.110	-0.007	-0.012	-0.030	-0.041	-0.032
	(0.193)	(0.190)	(0.191)	(0.192)	(0.193)	(0.205)	(0.168)	(0.149)	(0.148)	(0.148)	(0.151)	(0.156)
$Imheg_{ij}$	-0.075	-0.058	-0.058	-0.033	-0.046	-0.044	0.097	0.062	0.059	0.049	0.038	0.060
	(0.299)	(0.273)	(0.273)	(0.272)	(0.275)	(0.268)	(0.234)	(0.211)	(0.211)	(0.213)	(0.216)	(0.202)
$Comcol_{ij}$	0.343	0.384	0.383	0.373	0.372	0.365	0.390	0.430*	0.427*	0.435*	0.435*	0.457*
	(0.352)	(0.339)	(0.340)	(0.335)	(0.335)	(0.355)	(0.257)	(0.245)	(0.245)	(0.250)	(0.249)	(0.257)
$Border_{ij}$	-0.113	-0.038	-0.036	-0.046	-0.032	-0.112	0.031	-0.013	-0.005	-0.020	-0.016	-0.038
	(0.378)	(0.322)	(0.318)	(0.321)	(0.319)	(0.315)	(0.204)	(0.172)	(0.170)	(0.172)	(0.172)	(0.174)
PTA_{ijt}	0.339**	0.338**	0.338**	0.320**	0.336**	0.331**	0.250**	0.248***	0.251***	0.243**	0.250**	0.224**
	(0.152)	(0.139)	(0.138)	(0.145)	(0.145)	(0.146)	(0.101)	(0.096)	(0.095)	(0.098)	(0.099)	(0.098)
GSP_{ijt}	0.173	0.173	0.173	0.165	0.173	0.147	-0.071	-0.130	-0.129	-0.131	-0.127	-0.188
	(0.265)	(0.230)	(0.229)	(0.229)	(0.229)	(0.243)	(0.177)	(0.172)	(0.172)	(0.174)	(0.171)	(0.172)
$ComCur_{ijt}$	-0.088	-0.107	-0.110	-0.133	-0.129	-0.107	0.118	0.199	0.191	0.202	0.215	0.213
	(0.339)	(0.322)	(0.318)	(0.316)	(0.314)	(0.341)	(0.192)	(0.183)	(0.179)	(0.181)	(0.182)	(0.192)
$LogTariff^{wa}_{ijt}$	-0.649	-0.715	-0.714			-0.862	1.222	1.304	1.307			1.126
	(1.327)	(1.352)	(1.352)			(1.402)	(1.163)	(1.034)	(1.038)			(1.175)
NTM_{ijt}	-1.926	-1.084					-2.484	-2.386				
	(5.397)	(5.411)					(2.711)	(2.448)				

MID_{ij}	-0.000						0.002					
	(0.003)						(0.003)					
$alliance_{ijt}$	0.101						0.093					
	(0.184)						(0.140)					
$ComPol_{ijt}$	0.248						-0.053					
	(0.252)						(0.204)					
$ComRegion_{ij}$	0.068						0.236					
	(0.244)						(0.178)					
$ComDev_{ij}$	-0.006						0.080					
	(0.119)						(0.089)					
$GenDist_{ij}$	0.147						-0.261					
	(1.597)						(1.040)					
$LogTariff^{sa}_{ijt}$				-2.342						0.248		
				(2.682)						(1.989)		
$LogTariff^{la}_{ijt}$					-0.652						0.840	
					(2.371)						(1.984)	
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,360	2,360	2,360	2,360	2,360	1,948	2,366	2,366	2,366	2,366	2,366	1,952
R^2	0.551	0.548	0.548	0.548	0.547	0.554						
Pseudo R^2							0.129	0.128	0.128	0.127	0.127	0.127

Note: The standard errors are clustered at the (directional) country-pair level. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 4: OLS/PPML estimation results with further fixed effect controls and clustering.

	OLS	OLS	OLS	OLS	OLS	PPML	PPML	PPML	PPML	PPML
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PS_{ijt}	1.435***	0.931**	1.435***	1.435***	0.931***	1.314***	0.764***	1.314***	1.314***	0.764***
	(0.462)	(0.360)	(0.502)	(0.481)	(0.353)	(0.284)	(0.221)	(0.307)	(0.311)	(0.223)
$LogDist_{ij}$	-0.819***	-0.557***	-0.819***	-0.819***	-0.557***	-0.768***	-0.483***	-0.768***	-0.768***	-0.483***
	(0.091)	(0.145)	(0.091)	(0.090)	(0.141)	(0.064)	(0.097)	(0.064)	(0.067)	(0.108)
$ComLang_{ij}$	0.534***	0.333*	0.534***	0.534***	0.333**	0.581***	0.320***	0.581***	0.581***	0.320***
	(0.167)	(0.170)	(0.163)	(0.158)	(0.160)	(0.132)	(0.112)	(0.143)	(0.145)	(0.115)
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
$LogTariff^{wa}_{ijt}$	-0.714	-0.804	-0.714	-0.714	-0.804	1.307	0.571	1.307	1.307	0.571
	(1.352)	(1.046)	(1.407)	(1.359)	(1.006)	(1.038)	(0.534)	(1.064)	(1.080)	(0.570)
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pol-Pol FE		Y			Y		Y			Y
Dev-Dev FE		Y			Y		Y			Y
Region-Region FE		Y			Y		Y			Y
Errors clustered by (directional) country-pair	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Errors clustered by exporter-year			Y	Y	Y			Y	Y	Y
Errors clustered by importer-year				Y	Y				Y	Y
Observations	2,360	2,357	2,360	2,360	2,357	2,366	2,364	2,366	2,366	2,364
R^2	0.548	0.677	0.548	0.548	0.677					
Pseudo R^2						0.128	0.150	0.128	0.128	0.150

Note: The Pol-Pol FE is defined by the combination of political systems of the exporting (evaluated) and the importing (evaluating) country, where the political systems are classified as democratic versus non-democratic. The Dev-Dev FE is defined by the combination of development stages of the country pair, where the development stages are industrialized versus non-industrialized. The Region-Region FE is defined by the combination of the geographical regions of the country pair, where the regions are: East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, North America, South Asia, and Sub-Saharan Africa. For example, the Pol-Pol FE includes four fixed effect indicators: democracy to democracy, democracy to non-democracy, non-democracy to democracy, and non-democracy to non-democracy. The basic list of covariates is the same as in Columns 3 and 9 of Table 3, but some of the estimates are omitted from the table above to conserve space. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 5: IV estimation results — subset of PS-based IVs.

	jj'-based IVs			ii'-based IVs			ii' and jj'-based IVs		
	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PS_{ijt}	2.408***		1.538***	1.677**		1.367**	2.037***		1.453***
	(0.815)		(0.574)	(0.785)		(0.581)	(0.616)		(0.391)
$LogDist_{ij}$	-0.817***	-0.002	-0.765***	-0.818***	-0.003	-0.767***	-0.818***	-0.003	-0.763***
	(0.090)	(0.015)	(0.063)	(0.090)	(0.013)	(0.065)	(0.090)	(0.012)	(0.063)
$ComLang_{ij}$	0.490***	0.028	0.573***	0.523***	0.019	0.580***	0.501***	0.010	0.571***
	(0.170)	(0.024)	(0.133)	(0.168)	(0.023)	(0.137)	(0.167)	(0.021)	(0.132)
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$LogTariff_{ijt}^{wa}$	-0.738	0.079	1.285	-0.720	-0.105	1.302	-0.796	-0.042	1.247
	(1.352)	(0.095)	(1.045)	(1.354)	(0.102)	(1.054)	(1.358)	(0.100)	(1.032)
$PS_{ij't}^{ComLang,c}$		-2.588***						-2.056***	
		(0.370)						(0.329)	
$PS_{i'jt}^{GenDist,c}$					-1.287***			-1.098***	
					(0.149)			(0.134)	
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,360	2,360	2,366	2,359	2,359	2,365	2,359	2,359	2,365
Hansen J-statistic							0.618		0.041
χ^2 p-value							0.432		0.841
1st stage F-statistic		49.369			75.369			66.508	
R^2	0.342	0.763		0.352	0.776		0.348	0.800	

Note: $PS_{ij't}^{ComLang,c}$ is the average of $PS_{ij't}$ across j' in year t: where j' does not share a common language with j. $PS_{i'jt}^{GenDist,c}$ is the average of $PS_{i'jt}$ across i' in year t: where i' has a genetic distance from i larger than i's median distance to all the other evaluated countries. The basic list of covariates is the same as in Columns 3 and 9 of Table 3. We use the Stata commands *ivreghdfe cue* and *ivpoisson igmm* for the main estimations unless otherwise noted; and *ivregress gmm* with *weakivtest* to obtain the first-stage estimation results and effective F-statistics (Montiel Olea and Pflueger, 2013). Note that *ivreghdfe* only reports the within-R^2 (excluding the variations explained by the fixed effects). The standard errors are clustered at the (directional) country-pair level. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 6: IV estimation results — non-PS-based IVs.

	MLDI			MLDI + Diplomatic Visit I			MLDI + Diplomatic Visit II			MLDI + Diplomatic Visit III			MLDI + Diplomatic Visit IV		
	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
PS_{ijt}	5.276*		2.639**	5.302**		3.163***	4.906**		2.812***	5.451**		2.967***	4.245**		2.752***
	(2.990)		(1.267)	(2.195)		(0.995)	(2.226)		(0.939)	(2.386)		(1.126)	(2.150)		(1.041)
$LogDist_{ij}$	-0.810***	-0.001	-0.755***	-0.810***	-0.000	-0.758***	-0.809***	-0.000	-0.755***	-0.811***	-0.001	-0.758***	-0.806***	-0.001	-0.756***
	(0.103)	(0.017)	(0.064)	(0.103)	(0.017)	(0.066)	(0.100)	(0.017)	(0.065)	(0.105)	(0.017)	(0.065)	(0.095)	(0.017)	(0.064)
$ComLang_{ij}$	0.362	0.045*	0.530***	0.361*	0.044*	0.512***	0.374*	0.044	0.523***	0.357	0.044	0.527***	0.391**	0.044	0.528***
	(0.222)	(0.027)	(0.149)	(0.212)	(0.027)	(0.154)	(0.205)	(0.027)	(0.148)	(0.220)	(0.027)	(0.153)	(0.196)	(0.027)	(0.150)
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
$LogTariff^{wa}_{ijt}$	-0.809	0.030	1.189	-0.811	0.026	1.233	-0.770	0.027	1.203	-0.822	0.028	1.255	-0.733	0.028	1.215
	(1.394)	(0.100)	(1.104)	(1.380)	(0.100)	(1.159)	(1.364)	(0.100)	(1.120)	(1.394)	(0.100)	(1.119)	(1.353)	(0.100)	(1.096)
$MLDI_{ijt}$		-0.200***			-0.201***			-0.201***			-0.201***			-0.201***	
		(0.050)			(0.049)			(0.049)			(0.049)			(0.050)	
$LeaderVisitI_{ijt}$					0.015**										
					(0.007)										
$LeaderVisitII_{ijt}$								0.015**							
								(0.008)							
$LeaderVisitIII_{ijt}$											0.017*				
											(0.010)				
$LeaderVisitIV_{ijt}$														0.019*	
														(0.011)	
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,360	2,360	2,366	2,360	2,360	2,366	2,360	2,360	2,366	2,360	2,360	2,366	2,360	2,360	2,366
Hansen J-statistic				0.000		0.354	0.038		0.039	0.011		0.248	0.237		0.023
χ^2 p-value				0.989		0.552	0.846		0.843	0.916		0.619	0.627		0.879
1st stage F-statistic		16.536			14.808			14.505			14.238			14.222	
R^2	0.194	0.737		0.191	0.738		0.223	0.738		0.179	0.738		0.267	0.738	

Note: The basic list of covariates is the same as in Columns 3 and 9 of Table 3. $MLDI_{ijt}$ measures the distance in the machine-learning democracy indices (developed by Gründler and Krieger, 2016) between countries i and j in year t. $LeaderVisitI_{ijt}$ is an indicator for diplomatic visit by top office holders from country i to country j in year t, excluding visits that are related to multilateral meetings. $LeaderVisitII_{ijt}$ is an indicator for diplomatic visit by top office holders from country i to country j in year t, excluding visits that are related to multilateral meetings and visits that are related to trade and investment. $LeaderVisitIII_{ijt}$ and $LeaderVisitIV_{ijt}$ are the counterpart of $LeaderVisitI_{ijt}$ and $LeaderVisitII_{ijt}$, but further exclude visits by the No. 1 leader of country i in year t. We use the Stata commands *ivreghdfe cue* and *ivpoisson igmm* for the main estimations unless otherwise noted; and *ivregress gmm* with *weakivtest* to obtain the first-stage estimation results and effective F-statistics (Montiel Olea and Pflueger, 2013). Note that *ivreghdfe* only reports the within-R^2 (excluding the variations explained by the fixed effects). The standard errors are clustered at the (directional) country-pair level. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 7: IV estimation results with block-block FEs.

	PS-based IVs			PS-based IVs + MLDI			PS-based IVs + MLDI + Diplomatic Visit I			PS-based IVs + MLDI + Diplomatic Visit II		
	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML	IV GMM	1st stage	IV PPML
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PS_{ijt}	2.048***		1.726***	2.037***		1.746***	2.043***		1.748***	2.032***		1.734***
	(0.595)		(0.476)	(0.593)		(0.552)	(0.593)		(0.535)	(0.593)		(0.541)
$LogDist_{ij}$	-0.583***	0.009	-0.490***	-0.581***	0.014*	-0.490***	-0.581***	0.014*	-0.490***	-0.580***	0.015*	-0.489***
	(0.146)	(0.008)	(0.096)	(0.146)	(0.008)	(0.097)	(0.146)	(0.008)	(0.097)	(0.146)	(0.008)	(0.097)
$ComLang_{ij}$	0.268	0.026**	0.268**	0.263	0.026**	0.268**	0.252	0.026**	0.268**	0.244	0.025**	0.269**
	(0.171)	(0.010)	(0.115)	(0.169)	(0.010)	(0.115)	(0.164)	(0.010)	(0.114)	(0.164)	(0.010)	(0.114)
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
$LogTariff_{ijt}^{wa}$	-0.902	0.015	0.376	-0.909	-0.001	0.373	-0.911	-0.004	0.372	-0.917	-0.004	0.376
	(1.043)	(0.045)	(0.549)	(1.043)	(0.043)	(0.545)	(1.039)	(0.043)	(0.545)	(1.036)	(0.043)	(0.545)
$PS_{ij't}^{ComLang,c}$		-1.995***			-1.910***			-1.916***			-1.913***	
		(0.153)			(0.151)			(0.150)			(0.150)	
$PS_{i'jt}^{GenDist,c}$		-1.051***			-1.017***			-1.018***			-1.017***	
		(0.063)			(0.061)			(0.061)			(0.061)	
$MLDI_{ijt}$					-0.179***			-0.181***			-0.180***	
					(0.026)			(0.026)			(0.026)	
$LeaderVisitI_{ijt}$								0.014***				
								(0.005)				
$LeaderVisitII_{ijt}$											0.011*	
											(0.006)	
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pol-Pol FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dev-Dev FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region-Region FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,356	2,359	2,365	2,356	2,359	2,365	2,356	2,359	2,365	2,356	2,359	2,365
Hansen J-statistic	0.009			0.067			0.154			0.322		
χ^2 p-value	0.923			0.967			0.985			0.956		
1st stage F-statistic		272.577			208.600			161.738			158.982	
R^2	0.121	0.835		0.122	0.840		0.121	0.841		0.122	0.840	

Note: Refer to Tables 5–6 for the definitions of the IVs. The basic list of covariates is the same as in Columns 3 and 9 of Table 3. We use the Stata commands *ivreghdfe cue* and *ivpoisson igmm* for the main estimations unless otherwise noted; and *ivregress gmm* with *weakivtest* to obtain the first-stage estimation results and effective F-statistics (Montiel Olea and Pflueger, 2013). Note that *ivreghdfe* only reports the within-R^2 (excluding the variations explained by the fixed effects). The standard errors are clustered at the (directional) country-pair level for the second-stage estimation results. The first-stage results are based on robust errors, because the program *ivregress gmm* reported warnings and stopped running for the specification with block-block FEs and with errors clustered at the country-pair level. The *ivpoisson* in the current specification can only converge with the one-step GMM estimator, but not with the two-step or iterative GMM estimator (our default). The *ivpoisson* with the one-step GMM estimator, however, does not report the Hansen test; this explains the absence of the Hansen J-statistic and its χ^2 p-value in Columns 3, 6, 9, and 12. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 8: Arellano and Bond (1991) dynamic panel estimation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔPS_{ijt}	0.891**	0.831**	0.792**	0.598*	0.942**	0.866**	0.816**	0.626*
	(0.418)	(0.379)	(0.356)	(0.332)	(0.421)	(0.380)	(0.356)	(0.333)
$PS_{ij,t-1}$	0.661	0.614	0.517	0.386	0.735	0.671	0.565	0.436
	(0.485)	(0.441)	(0.413)	(0.394)	(0.489)	(0.444)	(0.415)	(0.395)
$\ln x_{ij,t-1}$	0.304***	0.305***	0.304***	0.295***	0.306***	0.308***	0.307***	0.298***
	(0.035)	(0.035)	(0.035)	(0.034)	(0.035)	(0.035)	(0.035)	(0.034)
$\ln x_{ij,t-2}$					-0.035	-0.035	-0.035	-0.040
					(0.029)	(0.029)	(0.029)	(0.028)
PTA_{ijt}	0.052	0.052	0.038	0.036	0.044	0.044	0.029	0.025
	(0.098)	(0.097)	(0.096)	(0.095)	(0.099)	(0.098)	(0.097)	(0.096)
GSP_{ijt}	-0.025	-0.017	-0.020	0.004	-0.022	-0.016	-0.020	0.003
	(0.138)	(0.136)	(0.135)	(0.132)	(0.138)	(0.136)	(0.135)	(0.132)
$LogTariff^{wa}_{ijt}$	-2.019**	-1.927***	-1.860***	-1.547***	-1.864**	-1.829**	-1.793***	-1.489***
	(0.903)	(0.729)	(0.605)	(0.562)	(0.913)	(0.734)	(0.608)	(0.563)
Exporter-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Importer-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Lags included in the IVs†	1	2	3	4	1	2	3	4
Arellano-Bond test								
Order 1: z-statistic	-12.433	-12.608	-12.614	-12.614	-14.787	-15.117	-15.163	-15.330
Order 1: p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Order 2: z-statistic	-1.186	-1.177	-1.190	-1.257	-0.576	-0.528	-0.526	-0.427
Order 2: p-value	0.236	0.239	0.234	0.209	0.565	0.598	0.599	0.669
Observations	1,564	1,564	1,564	1,564	1,564	1,564	1,564	1,564

Note: ΔPS_{ijt}, $PS_{ij,t-1}$, and $LogTariff^{wa}_{ijt}$ are allowed to be endogenous. The one-step GMM estimator is used. Standard errors are based on the conventionally derived variance estimator for generalized method of moments estimation. †The IVs used for the first-difference equation are: $\ln x_{ij,t-2}$ and higher-order lagged trade flows; $\Delta PS_{ij,t-1-L}$, $PS_{ij,t-2-L}$, and $LogTariff^{wa}_{ij,t-1-L}$ for $L = 1, \ldots, 4$. Data on trade flows for 1995–2014 are used. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 9: PPML estimation results for sector-level trade flows (BEC classification).

	PPML (1)	PPML (2)	PPML (3)	PPML (4)	PPML (5)
ΔPS_{ijt}	0.548***	0.798***	0.572***	0.342	-0.080
	(0.150)	(0.210)	(0.183)	(0.219)	(1.457)
$PS_{ij,t-1}$	0.640***	1.354***	0.532**	0.505*	2.921***
	(0.200)	(0.343)	(0.233)	(0.283)	(0.924)
$LogDist_{ij}$	-0.907***	-0.768***	-1.076***	-0.824***	-0.423**
	(0.044)	(0.081)	(0.045)	(0.052)	(0.192)
$ComLang_{ij}$	0.395***	0.318***	0.503***	0.380***	-0.369
	(0.082)	(0.119)	(0.092)	(0.110)	(0.350)
$ComLeg_{ij}$	0.197***	0.234***	0.102	0.371***	0.194
	(0.060)	(0.082)	(0.069)	(0.075)	(0.253)
$Exheg_{ij}$	0.080	-0.276	0.294**	0.115	-0.213
	(0.117)	(0.211)	(0.136)	(0.158)	(0.323)
$Imheg_{ij}$	-0.163	0.245*	-0.089	-0.183	0.443
	(0.130)	(0.136)	(0.159)	(0.152)	(0.403)
$Comcol_{ij}$	0.417**	0.250	0.524***	0.254	2.247***
	(0.182)	(0.322)	(0.187)	(0.197)	(0.576)
$Border_{ij}$	0.058	-0.027	-0.038	0.187	1.198**
	(0.096)	(0.141)	(0.106)	(0.123)	(0.501)
PTA_{ijt}	0.274***	0.265**	0.356***	0.128	-0.319
	(0.066)	(0.128)	(0.078)	(0.079)	(0.312)
GSP_{ijt}	-0.259***	-0.416***	-0.151	-0.251**	-2.146***
	(0.091)	(0.130)	(0.108)	(0.122)	(0.377)
$ComCur_{ijt}$	0.146	-0.089	0.229*	0.041	-0.744
	(0.111)	(0.167)	(0.132)	(0.151)	(0.638)
$LogTariff_{ijkt}^{HS,wa}$	-2.003***	-1.141	-1.539**	-4.028***	5.907
	(0.490)	(0.710)	(0.632)	(1.152)	(4.105)
Exporter-Sector-Year FE	Y	Y	Y	Y	Y
Importer-Sector-Year FE	Y	Y	Y	Y	Y
BEC Classification	All	C	I	K	U
Observations	1,367,205	278,988	764,999	82,253	5,109
Pseudo R^2	0.317	0.254	0.355	0.249	0.302

Note: Trade flows and tariffs are measured at the HS 4-digit level. The types of goods refer to: (C) consumer goods, (I) intermediate goods, (K) capital goods, and (U) not classified by the BEC classification. We use the Stata command *ppmlhdfe* for these estimations. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 10: PPML estimation results for sector-level trade flows (Rauch classification).

	PPML (1)	PPML (2)	PPML (3)	PPML (4)
ΔPS_{ijt}	0.569***	0.527	0.504***	0.579***
	(0.159)	(0.381)	(0.176)	(0.173)
$PS_{ij,t-1}$	0.779***	0.476	0.633**	0.903***
	(0.212)	(0.457)	(0.247)	(0.230)
$LogDist_{ij}$	-0.899***	-1.321***	-1.005***	-0.807***
	(0.047)	(0.084)	(0.045)	(0.055)
$ComLang_{ij}$	0.427***	0.874***	0.361***	0.350***
	(0.085)	(0.145)	(0.104)	(0.099)
$ComLeg_{ij}$	0.183***	-0.321***	0.062	0.317***
	(0.062)	(0.121)	(0.070)	(0.069)
$Exheg_{ij}$	0.101	1.031***	0.224*	-0.074
	(0.118)	(0.331)	(0.134)	(0.130)
$Imheg_{ij}$	0.013	-0.263	-0.338**	0.114
	(0.127)	(0.191)	(0.135)	(0.141)
$Comcol_{ij}$	0.296	1.204***	-0.015	0.201
	(0.187)	(0.308)	(0.205)	(0.224)
$Border_{ij}$	0.079	-0.114	0.053	0.172
	(0.101)	(0.181)	(0.122)	(0.113)
PTA_{ijt}	0.271***	0.807***	0.271***	0.121
	(0.067)	(0.143)	(0.076)	(0.080)
GSP_{ijt}	-0.163	0.240	0.001	-0.197*
	(0.104)	(0.151)	(0.126)	(0.110)
$ComCur_{ijt}$	0.133	0.177	0.457***	0.077
	(0.115)	(0.216)	(0.160)	(0.124)
$LogTariff^{SITC,wa}_{ijkt}$	-1.965***	-1.457**	-1.231**	-2.582***
	(0.406)	(0.587)	(0.623)	(0.634)
Exporter-Sector-Year FE	Y	Y	Y	Y
Importer-Sector-Year FE	Y	Y	Y	Y
Types of Goods	All	O	R	D
Observations	358,473	43,054	85,193	230,226
Pseudo R^2	0.279	0.435	0.224	0.236

Note: Trade flows and tariffs are measured at the SITC2 3-digit level. The types of goods refer to: (O) goods traded on an organized exchange, (R) reference-priced goods, and (D) differentiated products. We adopt the Rauch 'conservative' classification, which minimizes the number of commodities that are classified as either (O) or (R). We use the Stata command *ppmlhdfe* for these estimations. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 11: Set of the BBC WSP countries with available intra-firm trade data.

(i,j)	A. Trade Flows from Affiliates to Parent Companies																	
	AUS	BRA	CAN	CHL	CHN	DEU	ESP	FRA	GBR	GRC	IDN	IND	JPN	KOR	MEX	RUS	TUR	USA
BRA																		5
CAN																		9
CHN																		8
DEU																		6
FRA																		10
GBR																		9
IND																		6
ISR	4	4	4	4	4	4	4	2	4	1	4	4	4	4	4	4	1	7
JPN						2		2	2									6
KOR																		2
RUS																		6
USA			10			10		10	10				7					

(i,j)	B. Trade Flows from Parent Companies to Affiliates																				
	ARG	AUS	BRA	CAN	CHL	CHN	DEU	ESP	FRA	GBR	GRC	IDN	IND	JPN	KOR	MEX	NGA	PER	RUS	TUR	USA
CAN																					9
DEU																					5
FRA														1							10
GBR														1							6
JPN																					6
USA	1	10	9	10	4	10	10	5	10	10	1	2	8	8	6	9	4	1	7	5	

Note: The entries refer to the number of observations available for the corresponding (i,j) origin-destination combinations during 2005–2014.

Table 12: PPML estimation results for intra-firm trade flows.

Trade Flow	PPML (1) affiliates to parents	PPML (2) parents to affiliates	PPML (3) intra-firm
PS_{ijt}	-0.002	-0.430	-0.429
	(0.352)	(0.344)	(0.367)
$LogDist_{ij}$	-10.589***	-1.749***	-2.617***
	(2.138)	(0.083)	(0.465)
$ComLang_{ij}$	-10.955***	-2.841***	1.134***
	(2.603)	(0.296)	(0.332)
$ComLeg_{ij}$	12.279***	3.389***	0.467
	(2.475)	(0.063)	(0.452)
$Exheg_{ij}$	-0.205	2.196***	-1.599**
	(0.145)	(0.266)	(0.691)
$Imheg_{ij}$	-12.354***	-1.485***	0.061
	(2.696)	(0.280)	(0.414)
PTA_{ijt}	4.647***	-0.386***	-0.148
	(1.444)	(0.108)	(0.127)
GSP_{ijt}	3.467***		-7.861***
	(1.317)		(0.596)
$LogTariff_{ijt}^{wa}$	-1.411	-1.750***	-0.965
	(4.921)	(0.534)	(0.794)
Exporter FE	Y	Y	Y
Importer FE	Y	Y	Y
Year FE	Y	Y	Y
Observations	149	166	275
R^2	0.980	0.988	0.966

Note: (1) uses trade flows from affiliates to parent companies ($a2h$); (2) uses trade flows from parent companies to affiliates ($h2a$); (3) uses combined trade flows of (1) and (2) in the same origin-destination direction. $Comcol_{ij}$ and $ComCur_{ijt}$ are dropped because of collinearity. We use the Stata command *ppml* for these estimations. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 13: Characteristics of countries included in the pseudo world.

	(a)	(b)	(c)
year	no. of countries in the pseudo world	GDP share of the pseudo world	Import share of the pseudo world
2005	192	0.999	0.996
2006	192	0.999	0.996
2007	191	0.998	0.996
2008	190	0.996	0.994
2009	191	0.995	0.993
2010	191	0.995	0.992
2011	192	0.997	0.993
2012	189	0.996	0.993
2013	190	0.995	0.994
2014	189	0.996	0.994

Note:
(a) refers to the number of countries in the pseudo world after the iterated adjustment (described in Appendix A.12) to ensure that every country has positive expenditure and internal trade.
(b) refers to the total GDP of the countries in the pseudo world relative to the actual world GDP reported by WDI (entries supplemented by CEPII when missing).
(c) refers to the total imports of the countries in the pseudo world relative to the actual world imports reported by COW (entries supplemented by DOTS when missing).

Table 14: Major shifts in country image.

Evaluating Country	A1. George W. Bush Effects			B. Donald Trump Effects			C1. Senkaku-Islands Dispute Effects: China			D. Brexit Effects			E. Good-Boy Canadian Effects		
	PS_{2011}	PS_{2007}	ΔPS	PS_{2011}	PS_{2017}	ΔPS	PS_{2012}	PS_{2013}	ΔPS	PS_{2014}	PS_{2017}	ΔPS	PS_{2010}	PS_{2017}	ΔPS
Brazil (BRA)	0.64	0.29	-0.35	0.64	0.42	-0.22	0.48	0.54	0.06	0.45	0.33	-0.12	0.60	0.71	0.11
Canada (CAN)	0.40	0.34	-0.06	0.40	0.34	-0.06	0.53	0.29	-0.24	0.80	0.73	-0.07	x	x	x
China (CHN)	0.33	0.28	-0.05	0.33	0.33	0.00	x	x	x	0.39	0.73	0.34	0.54	0.82	0.28
France (FRA)	0.46	0.24	-0.22	0.46	0.37	-0.09	0.38	0.25	-0.13	0.72	0.63	-0.09	0.79	0.92	0.13
Germany (DEU)	0.37	0.16	-0.21	0.37	0.22	-0.15	0.42	0.13	-0.29	0.51	0.35	-0.16	0.73	0.63	-0.10
India (IND)	0.42	0.30	-0.12	0.42	0.40	-0.02	0.30	0.36	0.06	0.43	0.33	-0.10	0.24	0.37	0.13
Israel (ISR)	.	.	.	.	.	.	.	.	.	0.50	.	.	.	.	.
Japan (JPN)	0.36	.	.	0.36	.	.	0.10	0.05	-0.05	0.47	.	.	0.40	.	.
Pakistan (PAK)	0.16	.	.	0.16	0.24	0.08	0.76	0.81	0.05	0.39	0.20	-0.19	0.11	0.26	0.15
Russia (RUS)	0.38	0.19	-0.19	0.38	0.07	-0.31	0.46	0.42	-0.04	0.44	0.24	-0.20	0.44	0.36	-0.08
South Korea (KOR)	0.74	0.35	-0.39	0.74	.	.	0.33	0.23	-0.10	0.74	.	.	0.77	.	.
United Kingdom (GBR)	0.46	0.33	-0.13	0.46	0.33	-0.13	0.57	0.37	-0.20	x	x	x	0.62	0.94	0.32
United States (USA)	x	x	x	x	x	x	0.42	0.23	-0.19	0.81	0.79	-0.02	0.67	0.87	0.20
Australia (AUS)	0.45	0.29	-0.16	0.45	0.42	-0.03	0.61	0.36	-0.25	0.73	0.76	0.03	0.72	0.91	0.19
Chile (CHL)	0.62	0.32	-0.30	0.62	.	.	0.53	0.57	0.04	0.45	.	.	0.60	.	.
Ghana (GHA)	0.84	.	.	0.84	.	.	0.64	0.68	0.04	0.78	.	.	0.58	.	.
Greece (GRC)	.	.	.	.	0.30	.	.	0.34	.	.	0.42	.	.	0.70	.
Indonesia (IDN)	0.58	0.21	-0.37	0.58	0.27	-0.31	0.51	0.55	0.04	0.59	0.51	-0.08	0.37	0.32	-0.05
Kenya (KEN)	0.68	0.70	0.02	0.68	0.67	-0.01	0.75	0.58	-0.17	0.74	0.69	-0.05	0.55	0.54	-0.01
Mexico (MEX)	0.23	0.12	-0.11	0.23	0.29	0.06	0.37	0.31	-0.06	0.40	0.53	0.13	0.37	0.69	0.32
Nigeria (NGA)	0.76	0.72	-0.04	0.76	0.68	-0.08	0.89	0.78	-0.11	0.67	0.76	0.09	0.43	0.55	0.12
Peru (PER)	0.53	.	.	0.53	0.40	-0.13	0.50	0.53	0.03	0.41	0.41	0.00	.	0.42	.
Spain (ESP)	0.41	.	.	0.41	0.16	-0.25	0.39	0.13	-0.26	0.41	0.34	-0.07	0.54	0.59	0.05
Turkey (TUR)	0.35	0.07	-0.28	0.35	0.20	-0.15	.	0.32	.	0.39	0.34	-0.05	0.16	0.43	0.27
Mean			-0.19			-0.11			-0.09			-0.04			0.13
Median			-0.18			-0.09			-0.08			-0.07			0.13

Note: We dropped Argentina, Iran, North Korea, and South Africa from this table since their entries are all missing for the years and the evaluated countries studied. Entries of self-evaluations are excluded from the analysis, and indicated by ‘x’.

Table 15: Welfare effects of major shifts in country image.

	(1) Effects on welfare in %	(2) Gains from trade in %	(3) Significance $\equiv$ (1)/(2), in %	(4) Effects on exports in %
Panel A1. The George W. Bush Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2007}$)				
Scenario 1	-0.128	3.145	4.063	-4.718
Scenario 2	-0.228	3.145	7.239	-8.729
Scenario 3	-0.223	3.145	7.076	-8.524
Panel A2. The George W. Bush Effects on the US ($PS_{o,j,2011} \rightarrow PS_{o,j,2007}$, $o \in \{US, UK, FR, DE\}$)				
Scenario 1	-0.127	3.145	4.030	-4.699
Scenario 2	-0.226	3.145	7.172	-8.746
Scenario 3	-0.220	3.145	7.003	-8.544
Panel B. The Donald Trump Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2017}$)				
Scenario 1	-0.064	3.145	2.023	-2.329
Scenario 2	-0.125	3.145	3.982	-4.806
Scenario 3	-0.116	3.145	3.695	-4.445
Panel C1. The Senkaku-Islands Dispute Effects on China ($PS_{CN,j,2012} \rightarrow PS_{CN,j,2013}$)				
Scenario 1	-0.073	7.046	1.031	-1.634
Scenario 2	-0.165	7.046	2.344	-3.340
Scenario 3	-0.156	7.046	2.220	-3.180
Panel C2. The Senkaku-Islands Dispute Effects on China ($PS_{o,j,2012} \rightarrow PS_{o,j,2013}$, $o \in \{CN, JP\}$)				
Scenario 1	-0.070	7.046	0.998	-1.626
Scenario 2	-0.161	7.046	2.290	-3.338
Scenario 3	-0.152	7.046	2.156	-3.180
Panel D. The Brexit Effects on the UK ($PS_{UK,j,2014} \rightarrow PS_{UK,j,2017}$)				
Scenario 1	-0.049	6.205	0.794	-0.927
Scenario 2	-0.095	6.205	1.533	-1.813
Scenario 3	-0.138	6.205	2.221	-2.636
Panel E. The Good-Boy Canadian Effects on Canada ($PS_{CA,j,2010} \rightarrow PS_{CA,j,2017}$)				
Scenario 1	0.552	7.210	7.649	9.038
Scenario 2	0.609	7.210	8.447	10.021
Scenario 3	0.611	7.210	8.468	10.047

Note: The results are based on the dynamic panel estimate of γ (= 0.891) and an elasticity of substitution $\sigma = 5$. The set of countries included in the simulation are indicated in Table 13. In Scenario 1, importing countries not included in the BBC WSP as evaluating countries are assumed not to have changed their opinions towards the evaluated country. In Scenario 2, these countries are assumed to take on the mean change in the views towards the evaluated country, while in Scenario 3, the median change. Panel A2 takes into account simultaneous changes in the country images of the US, the UK, France, and Germany, but the US's opinions toward others are kept fixed, given that we are examining the welfare effects on the US. Germany is included as an evaluated country only during 2008–2014, so we use its country image in 2008 in place of 2007 for the counterfactual exercise A2. Panel C2 takes into account simultaneous changes in the country images of China and Japan, but China's opinions toward others are kept fixed.

Table 16: Correlated shifts in country image.

Evaluating Country	A2. George W. Bush Effects: the US												C2. Senkaku-Islands Dispute Effects: China					
	USA			GBR			FRA			DEU			CHN			JPN		
	PS_{2011}	PS_{2007}	ΔPS	PS_{2011}	PS_{2007}	ΔPS	PS_{2011}	PS_{2007}	ΔPS	PS_{2011}	PS_{2007}	ΔPS	PS_{2012}	PS_{2013}	ΔPS	PS_{2012}	PS_{2013}	ΔPS
BRA	0.64	0.29	-0.35	0.43	0.24	-0.19	0.48	0.46	-0.02	0.64	0.44	-0.20	0.48	0.54	0.06	0.60	0.71	0.11
CAN	0.40	0.34	-0.06	0.69	0.59	-0.10	0.56	0.55	-0.01	0.69	0.68	-0.01	0.53	0.29	-0.24	0.72	0.61	-0.11
CHN	0.33	0.28	-0.05	0.48	0.49	0.01	0.46	0.62	0.16	0.50	0.58	0.08	x	x	x	o	o	o
FRA	0.46	0.24	-0.22	0.66	0.44	-0.22	x	x	x	0.84	0.74	-0.10	0.38	0.25	-0.13	0.66	0.56	-0.10
DEU	0.37	0.16	-0.21	0.67	0.51	-0.16	0.62	0.60	-0.02	x	x	x	0.42	0.13	-0.29	0.58	0.28	-0.30
IND	0.42	0.30	-0.12	0.40	0.37	-0.03	0.37	0.32	-0.05	0.37	0.19	-0.18	0.30	0.36	0.06	0.44	0.33	-0.11
JPN	0.36	.	.	0.37	.	.	0.31	.	.	0.37	0.45	0.08	0.10	0.05	-0.05	x	x	x
PAK	0.16	.	.	0.14	.	.	0.21	.	.	0.22	.	.	0.76	0.81	0.05	0.41	0.45	0.04
RUS	0.38	0.19	-0.19	0.48	0.55	0.07	0.58	0.63	0.05	0.68	0.61	-0.07	0.46	0.42	-0.04	0.54	0.45	-0.09
KOR	0.74	0.35	-0.39	0.85	0.61	-0.24	0.82	0.55	-0.27	0.82	0.71	-0.11	0.33	0.23	-0.10	0.38	0.21	-0.17
GBR	0.46	0.33	-0.13	x	x	x	0.54	0.54	0.00	0.77	0.62	-0.15	0.57	0.37	-0.20	0.70	0.59	-0.11
USA	x	x	x	o	o	o	o	o	o	o	o	o	0.42	0.23	-0.19	0.74	0.66	-0.08
AUS	0.45	0.29	-0.16	0.79	0.60	-0.19	0.54	0.48	-0.06	0.77	0.71	-0.06	0.61	0.36	-0.25	0.65	0.53	-0.12
CHL	0.62	0.32	-0.30	0.53	0.54	0.01	0.66	0.64	-0.02	0.54	0.53	-0.01	0.53	0.57	0.04	0.57	0.66	0.09
GHA	0.84	.	.	0.75	.	.	0.62	.	.	0.70	0.59	-0.11	0.64	0.68	0.04	0.48	0.59	0.11
GRC	.	.	.	.	.	.	.	.	.	.	.	.	.	0.34	.	.	0.50	.
IDN	0.58	0.21	-0.37	0.69	0.56	-0.13	0.60	0.53	-0.07	0.65	0.48	-0.17	0.51	0.55	0.04	0.77	0.82	0.05
KEN	0.68	0.70	0.02	0.67	0.74	0.07	0.46	0.66	0.20	0.58	0.73	0.15	0.75	0.58	-0.17	0.68	0.58	-0.10
MEX	0.23	0.12	-0.11	0.26	0.16	-0.10	0.42	0.36	-0.06	0.45	0.43	-0.02	0.37	0.31	-0.06	0.44	0.42	-0.02
NGA	0.76	0.72	-0.04	0.80	0.64	-0.16	0.68	0.63	-0.05	0.73	0.66	-0.07	0.89	0.78	-0.11	0.80	0.75	-0.05
PER	0.53	.	.	0.34	.	.	0.37	.	.	0.40	.	.	0.50	0.53	0.03	0.57	0.64	0.07
ESP	0.41	.	.	0.55	.	.	0.50	.	.	0.74	0.77	0.03	0.39	0.13	-0.26	0.62	0.36	-0.26
TUR	0.35	0.07	-0.28	0.41	0.21	-0.20	0.36	0.09	-0.27	0.53	0.37	-0.16	.	0.32	.	.	0.46	.
Mean			-0.19			-0.10			-0.03			-0.06			-0.09			-0.06
Median			-0.18			-0.13			-0.02			-0.07			-0.08			-0.09

Note: We dropped Argentina, Iran, Israel, North Korea, and South Africa from this table since their entries are all missing for the years and the evaluated countries studied. Entries of self-evaluations are excluded from the analysis, and indicated by 'x'. Changes in the US's opinions toward others are not used in the analysis of A2. George W. Bush Effects, and indicated by 'o'. Similarly, changes in China's opinions toward others are not used in the analysis of C2. Senkaku-Islands Dispute Effects. The entries for the US in A2 and the entries for China in C2 are the same as those in A1 and C1, respectively, repeated here for the ease of comparison.

Table 17: 95% confidence intervals of welfare effects.

	Effects on welfare in %	Errors from sampling of PS_{ijt}: based on Bernoulli standard error	Errors from sampling of PS_{ijt}: based on conservative margin of error	Errors from estimation of γ: based on CI of γ	Errors from estimation of γ: based on Normal distribution of γ
Panel A1. The George W. Bush Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2007}$)					
Scenario 1	-0.128	[-0.140, -0.116]	[-0.151, -0.103]	[-0.215, -0.029]	[-0.214, -0.032]
Scenario 2	-0.228	[-0.243, -0.210]	[-0.260, -0.193]	[-0.403, -0.037]	[-0.401, -0.043]
Scenario 3	-0.223	[-0.239, -0.202]	[-0.260, -0.184]	[-0.393, -0.037]	[-0.392, -0.042]
Panel A2. The George W. Bush Effects on the US ($PS_{o,j,2011} \rightarrow PS_{o,j,2007}$, $o \in \{US, UK, FR, DE\}$)					
Scenario 1	-0.127	[-0.138, -0.114]	[-0.149, -0.103]	[-0.214, -0.029]	[-0.213, -0.032]
Scenario 2	-0.226	[-0.241, -0.208]	[-0.257, -0.193]	[-0.399, -0.037]	[-0.397, -0.042]
Scenario 3	-0.220	[-0.237, -0.198]	[-0.257, -0.182]	[-0.389, -0.036]	[-0.388, -0.042]
Panel B. The Donald Trump Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2017}$)					
Scenario 1	-0.064	[-0.075, -0.051]	[-0.088, -0.040]	[-0.099, -0.024]	[-0.099, -0.025]
Scenario 2	-0.125	[-0.141, -0.109]	[-0.158, -0.094]	[-0.216, -0.028]	[-0.215, -0.031]
Scenario 3	-0.116	[-0.140, -0.096]	[-0.156, -0.080]	[-0.199, -0.028]	[-0.198, -0.030]
Panel C1. The Senkaku-Islands Dispute Effects on China ($PS_{CN,j,2012} \rightarrow PS_{CN,j,2013}$)					
Scenario 1	-0.073	[-0.092, -0.053]	[-0.114, -0.029]	[-0.325, -0.015]	[-0.324, -0.020]
Scenario 2	-0.165	[-0.190, -0.138]	[-0.225, -0.112]	[-0.502, -0.022]	[-0.500, -0.030]
Scenario 3	-0.156	[-0.188, -0.125]	[-0.225, -0.095]	[-0.486, -0.022]	[-0.484, -0.029]
Panel C2. The Senkaku-Islands Dispute Effects on China ($PS_{o,j,2012} \rightarrow PS_{o,j,2013}$, $o \in \{CN, JP\}$)					
Scenario 1	-0.070	[-0.089, -0.050]	[-0.110, -0.029]	[-0.321, -0.015]	[-0.320, -0.020]
Scenario 2	-0.161	[-0.186, -0.135]	[-0.213, -0.108]	[-0.496, -0.022]	[-0.493, -0.029]
Scenario 3	-0.152	[-0.185, -0.116]	[-0.213, -0.084]	[-0.478, -0.021]	[-0.476, -0.028]
Panel D. The Brexit Effects on the UK ($PS_{UK,j,2014} \rightarrow PS_{UK,j,2017}$)					
Scenario 1	-0.049	[-0.071, -0.028]	[-0.098, -0.005]	[-0.073, -0.005]	[-0.072, -0.007]
Scenario 2	-0.095	[-0.125, -0.065]	[-0.161, -0.033]	[-0.160, -0.009]	[-0.160, -0.011]
Scenario 3	-0.138	[-0.166, -0.094]	[-0.193, -0.060]	[-0.240, -0.012]	[-0.239, -0.016]
Panel E. The Good-Boy Canadian Effects on Canada ($PS_{CA,j,2010} \rightarrow PS_{CA,j,2017}$)					
Scenario 1	0.552	[0.474, 0.635]	[0.387, 0.735]	[0.041, 1.116]	[0.055, 1.110]
Scenario 2	0.609	[0.530, 0.692]	[0.441, 0.790]	[0.046, 1.224]	[0.062, 1.217]
Scenario 3	0.611	[0.531, 0.692]	[0.440, 0.786]	[0.046, 1.226]	[0.062, 1.220]

Note: Refer to the text for the implementation details of the four approaches.

Table 18: 95% confidence intervals of trade effects.

	Effects on exports in %	Errors from sampling of PS_{ijt}: based on Bernoulli standard error	Errors from sampling of PS_{ijt}: based on conservative margin of error	Errors from estimation of γ: based on CI of γ	Errors from estimation of γ: based on Normal distribution of γ
Panel A1. The George W. Bush Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2007}$)					
Scenario 1	-4.718	[-5.142, -4.276]	[-5.571, -3.804]	[-8.014, -0.961]	[-7.983, -1.077]
Scenario 2	-8.729	[-9.277, -8.095]	[-9.934, -7.469]	[-15.480, -1.288]	[-15.415, -1.514]
Scenario 3	-8.524	[-9.147, -7.751]	[-9.922, -7.023]	[-15.117, -1.270]	[-15.054, -1.491]
Panel A2. The George W. Bush Effects on the US ($PS_{o,j,2011} \rightarrow PS_{o,j,2007}$, $o \in \{US, UK, FR, DE\}$)					
Scenario 1	-4.699	[-5.097, -4.255]	[-5.521, -3.838]	[-7.993, -0.959]	[-7.962, -1.074]
Scenario 2	-8.746	[-9.328, -8.091]	[-9.926, -7.489]	[-15.519, -1.289]	[-15.454, -1.515]
Scenario 3	-8.544	[-9.177, -7.726]	[-9.925, -7.100]	[-15.159, -1.272]	[-15.095, -1.492]
Panel B. The Donald Trump Effects on the US ($PS_{US,j,2011} \rightarrow PS_{US,j,2017}$)					
Scenario 1	-2.329	[-2.745, -1.866]	[-3.182, -1.508]	[-3.717, -0.759]	[-3.704, -0.807]
Scenario 2	-4.806	[-5.408, -4.206]	[-6.037, -3.649]	[-8.382, -0.958]	[-8.347, -1.074]
Scenario 3	-4.445	[-5.358, -3.676]	[-5.986, -3.084]	[-7.719, -0.928]	[-7.687, -1.034]
Panel C1. The Senkaku-Islands Dispute Effects on China ($PS_{CN,j,2012} \rightarrow PS_{CN,j,2013}$)					
Scenario 1	-1.634	[-1.963, -1.294]	[-2.320, -0.873]	[-5.557, -0.257]	[-5.533, -0.344]
Scenario 2	-3.340	[-3.780, -2.860]	[-4.356, -2.403]	[-8.757, -0.391]	[-8.719, -0.523]
Scenario 3	-3.180	[-3.735, -2.623]	[-4.391, -2.081]	[-8.464, -0.379]	[-8.426, -0.506]
Panel C2. The Senkaku-Islands Dispute Effects on China ($PS_{o,j,2012} \rightarrow PS_{o,j,2013}$, $o \in \{CN, JP\}$)					
Scenario 1	-1.626	[-1.954, -1.281]	[-2.302, -0.905]	[-5.548, -0.256]	[-5.525, -0.342]
Scenario 2	-3.338	[-3.769, -2.875]	[-4.261, -2.415]	[-8.760, -0.391]	[-8.721, -0.522]
Scenario 3	-3.180	[-3.765, -2.534]	[-4.240, -1.957]	[-8.467, -0.378]	[-8.430, -0.505]
Panel D. The Brexit Effects on the UK ($PS_{UK,j,2014} \rightarrow PS_{UK,j,2017}$)					
Scenario 1	-0.927	[-1.335, -0.518]	[-1.866, -0.077]	[-1.354, -0.094]	[-1.352, -0.124]
Scenario 2	-1.813	[-2.392, -1.224]	[-3.070, -0.620]	[-3.043, -0.165]	[-3.032, -0.218]
Scenario 3	-2.636	[-3.178, -1.785]	[-3.687, -1.132]	[-4.580, -0.231]	[-4.563, -0.307]
Panel E. The Good-Boy Canadian Effects on Canada ($PS_{CA,j,2010} \rightarrow PS_{CA,j,2017}$)					
Scenario 1	9.038	[7.767, 10.397]	[6.342, 12.041]	[0.678, 18.334]	[0.908, 18.235]
Scenario 2	10.021	[8.729, 11.376]	[7.274, 12.986]	[0.757, 20.195]	[1.014, 20.088]
Scenario 3	10.047	[8.746, 11.386]	[7.255, 12.933]	[0.759, 20.246]	[1.016, 20.138]

Note: Refer to the text for the implementation details of the four approaches.

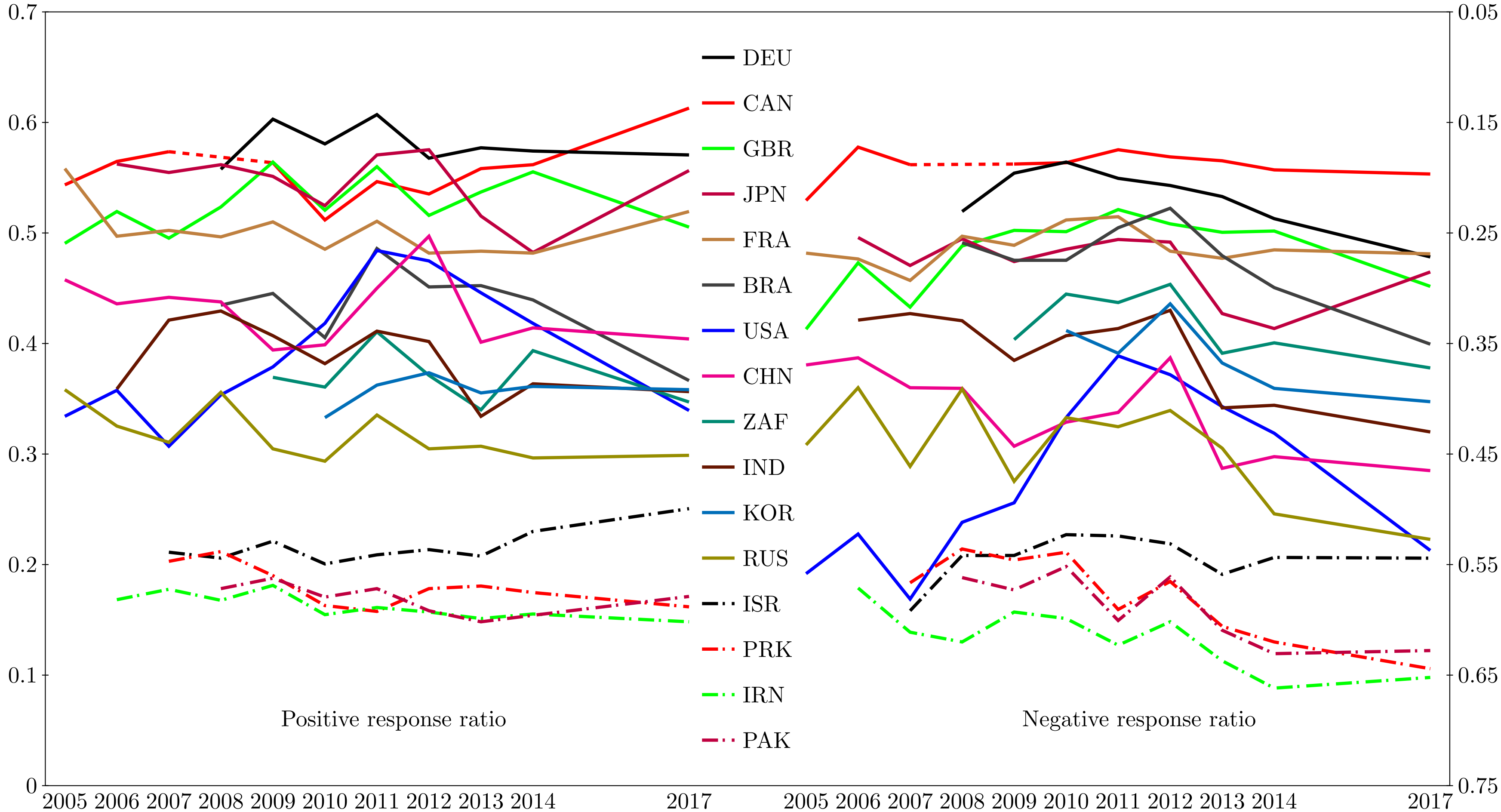


Figure 1: Average positive response ratio $\overline{PS}_{i \cdot t}$ and average negative response ratio $\overline{NG}_{i \cdot t}$. The data for Canada are missing in 2008, hence the dashed line between 2007 and 2009. The data for all countries are missing for 2015 and 2016. Average ratings exclude the target country's rating of itself.

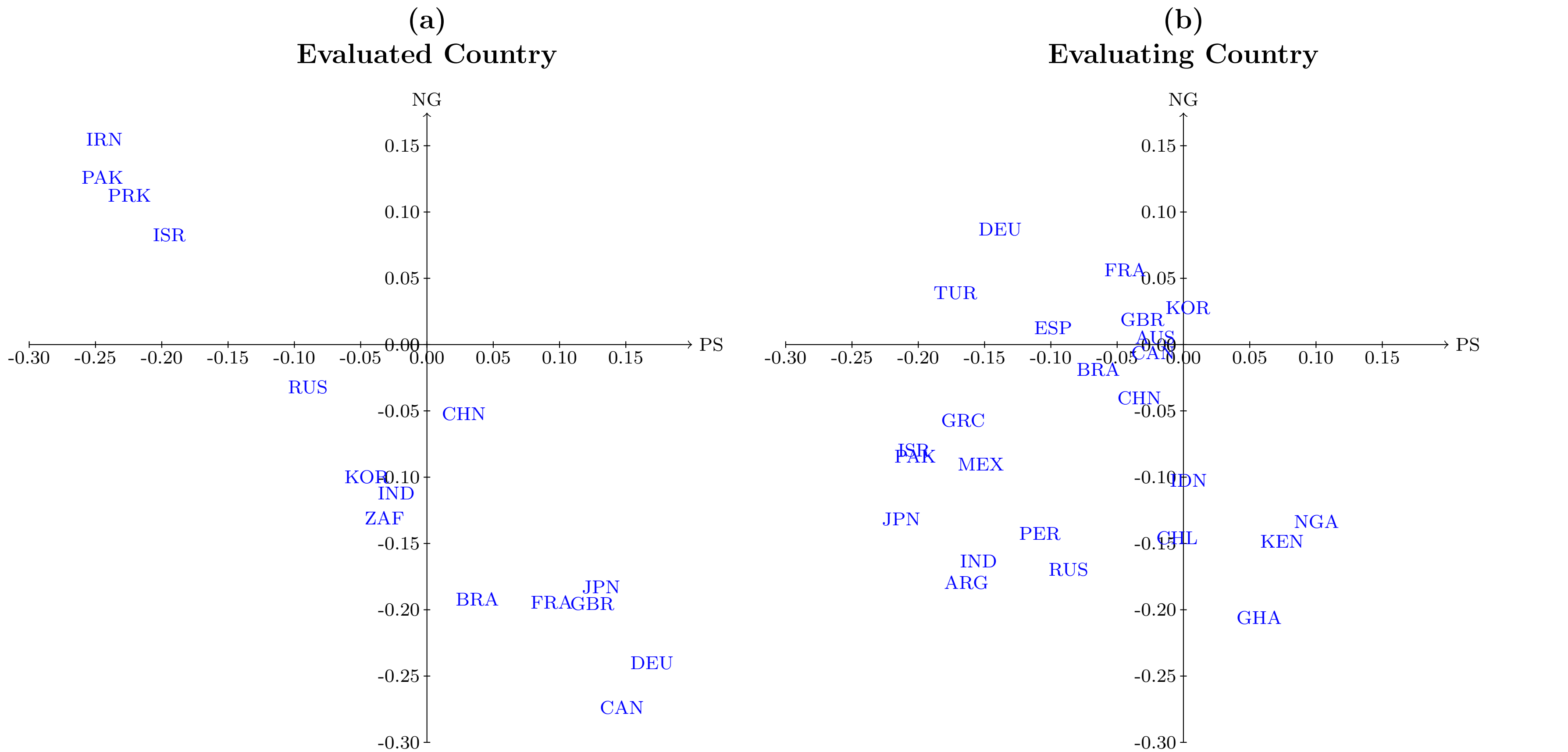
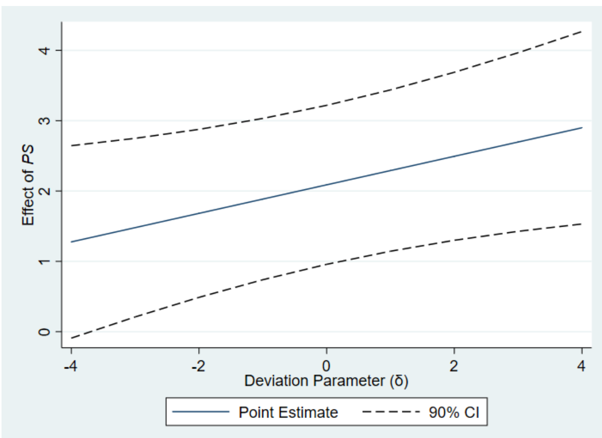


Figure 2: (a) Fixed effects for the evaluated countries (left) and (b) the evaluating countries (right) relative to the United States. The horizontal and vertical axes are the fixed effects for positive and negative response ratios, respectively.

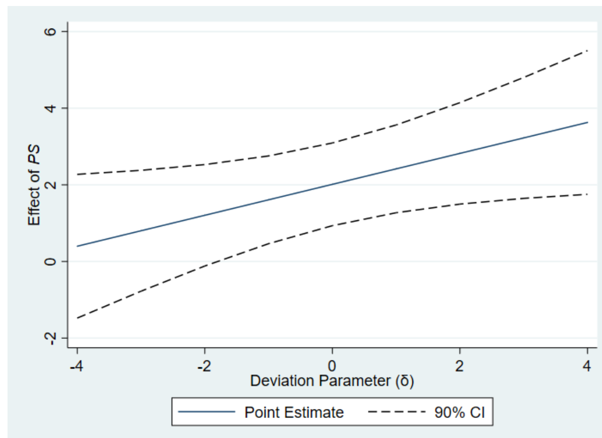
Figure 3: $\widetilde{PS}_{ij} \equiv (1/T)\sum_t \tilde{r}_{ijt}$ refers to the average positive response ratio across time after controlling for the evaluating-year and the evaluated-year fixed effects; i.e., $\tilde{r}_{ijt}$ is the residual from the regression: $PS_{ijt} = \mu_{it} + \nu_{jt} + r_{ijt}$. The horizontal axis indicates the countries evaluated and the vertical axis the residual positive response ratio $\widetilde{PS}_{ij}$ given by each of the evaluating countries.

Figure 4: Robustness of the PS_{ijt} effect estimates (with block-block FEs) to deviations from the exclusion restriction for IVs (Conley, Hansen, and Rossi, 2012)—with one IV used.

(a) jj' PS-based IV: $PS_{ij't}^{ComLang,c}$



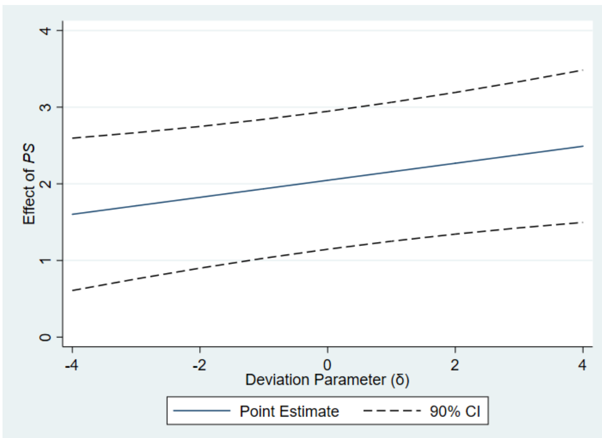
(b) ii' PS-based IV: $PS_{i'jt}^{GenDist,c}$



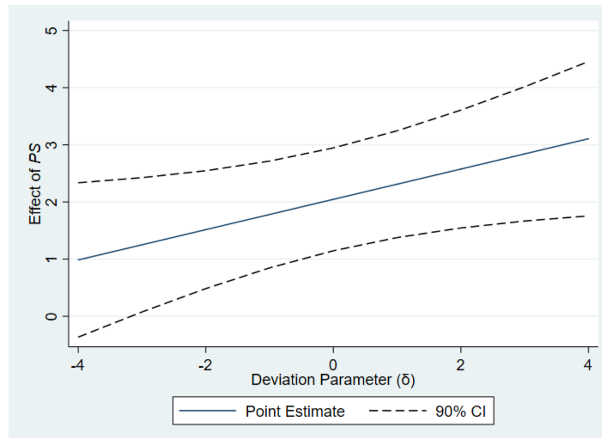
Note: Refer to Table A.6 for the corresponding baseline specification and estimation results. Specifically, refer to Columns 1–2 therein for plot (a), and Columns 4–5 therein for plot (b). Deviations from the assumption of exogenous IVs are parameterized by the parameter δ on the horizontal axis. In particular, the direct effect of an instrument on trade flows is assumed to be normally distributed with mean $\delta/2$ and variance $\delta^2/12$. For ease of comparison, a uniform distribution with the same mean and variance has a support of $[\delta, 0]$ for $\delta \leq 0$ (and a support of $[0, \delta]$ for $\delta \geq 0$, alternatively). The vertical axis reports the effect estimates of PS_{ijt} on bilateral trade flows.

Figure 5: Robustness of the PS_{ijt} effect estimates (with block-block FEs) to deviations from the exclusion restriction for IVs (Conley, Hansen, and Rossi, 2012)—with two PS-based IVs used ($PS^{ComLang,c}_{ij't} + PS^{GenDist,c}_{i'jt}$).

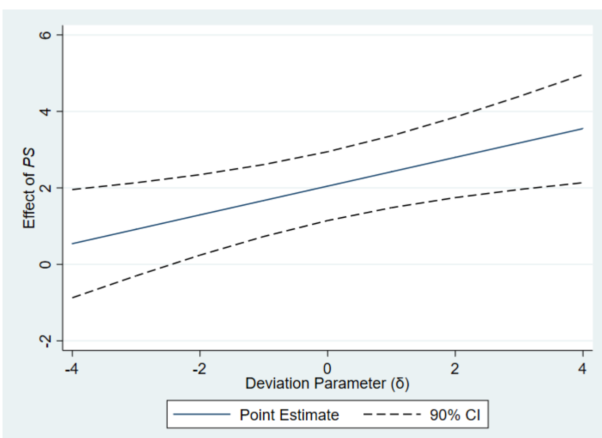
(a) deviation w.r.t. $PS^{ComLang,c}_{ij't}$



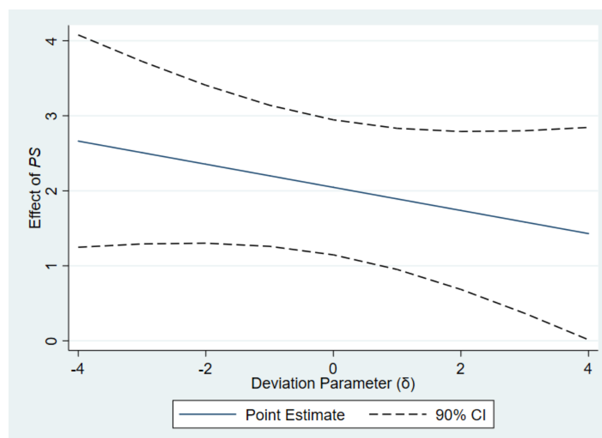
(b) deviation w.r.t. $PS^{GenDist,c}_{i'jt}$



(c) deviation w.r.t both IVs in the same direction

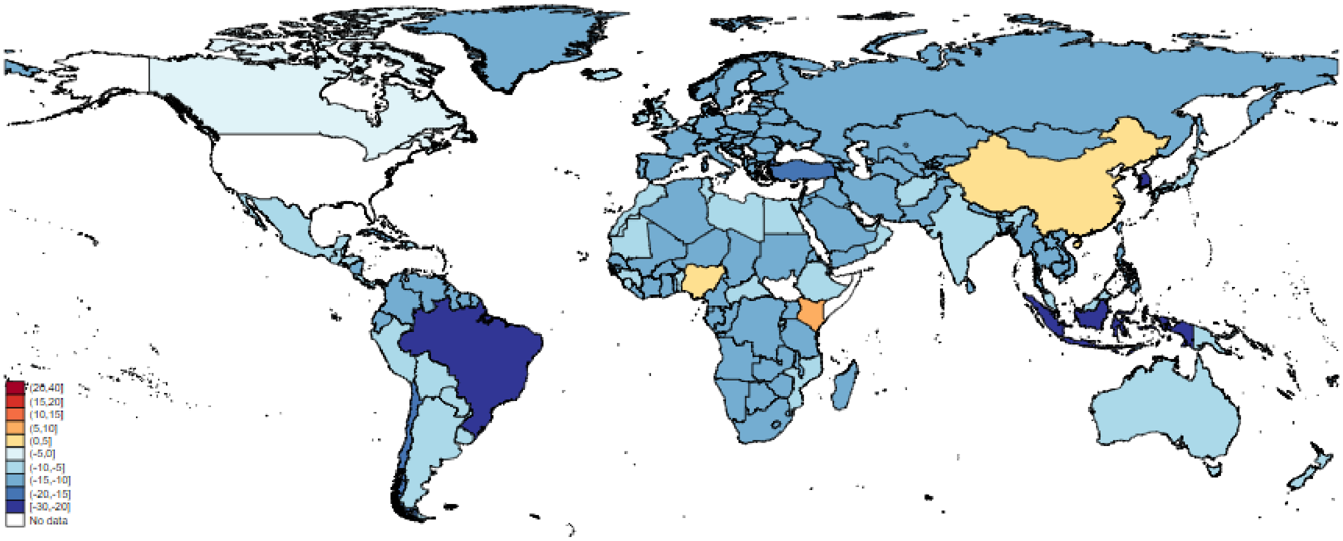


(d) deviation w.r.t. both IVs in opposite directions



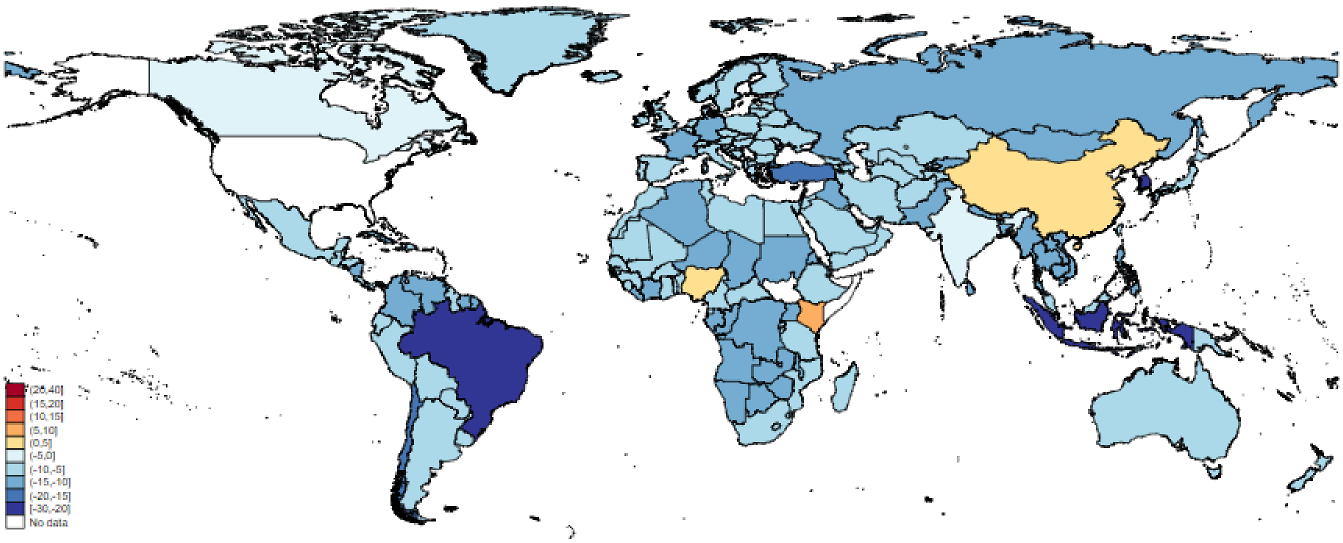
Note: Refer to Table 7, Columns 1–2, for the corresponding baseline specification and estimation results. Deviations from the assumption of exogenous IVs are parameterized by the parameter δ on the horizontal axis. In particular, the direct effect of an instrument on trade flows is assumed to be normally distributed with mean $\delta/2$ and variance $\delta^2/12$. For ease of comparison, a uniform distribution with the same mean and variance has a support of $[\delta, 0]$ for $\delta \leq 0$ (and a support of $[0, \delta]$ for $\delta \geq 0$, alternatively). The vertical axis reports the effect estimates of PS_{ijt} on bilateral trade flows. In plot (c), the deviations from exclusion restriction for $PS^{ComLang,c}_{ij't}$ and $PS^{GenDist,c}_{i'jt}$ are both parameterized by δ. In plot (d), the deviations from exclusion restriction for $PS^{ComLang,c}_{ij't}$ are parameterized by δ, while those for $PS^{GenDist,c}_{i'jt}$ are parameterized by $-\delta$.

Figure 6: A1. The George W. Bush Effects on the US Bilateral Exports.



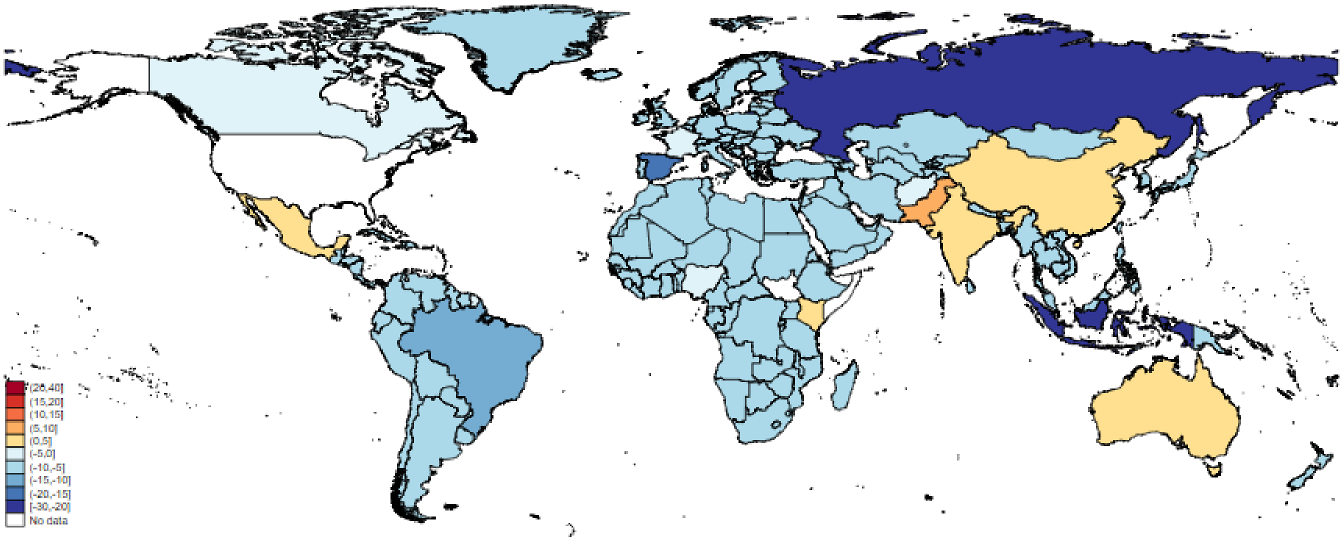
Note: Based on Scenario 2 counterfactual specifications, with changes in the country image of the US only. See the footnote of Table 15.

Figure 7: A2. The George W. Bush Effects on the US Bilateral Exports.



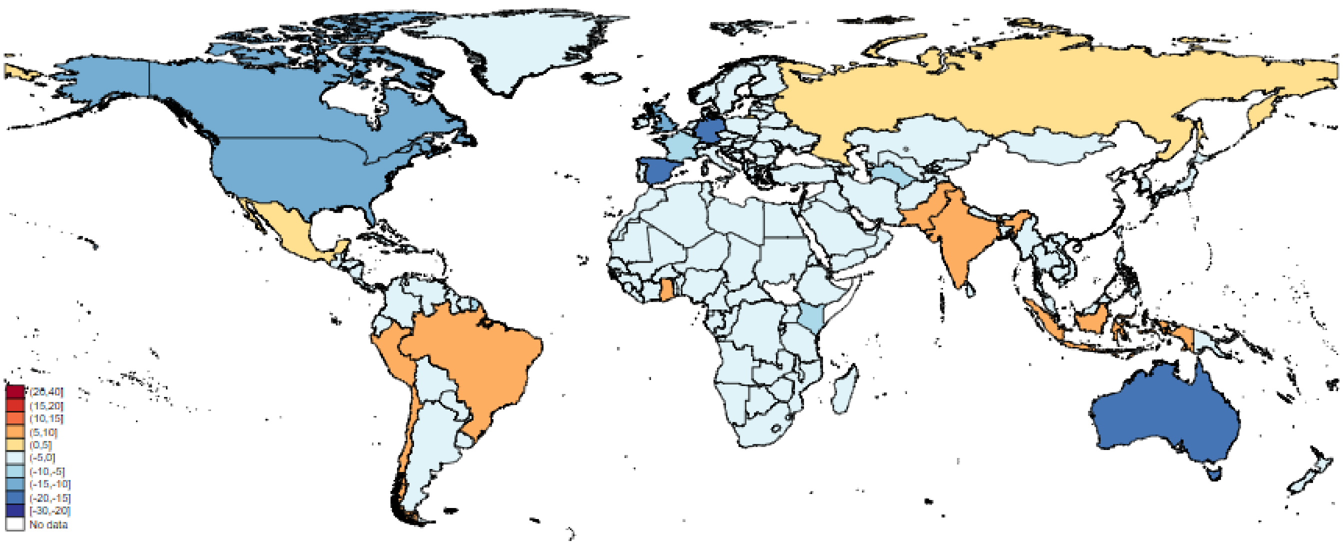
Note: Based on Scenario 2 counterfactual specifications, with changes in the country images of the US, the UK, France, and Germany. See the footnote of Table 15.

Figure 8: B. The Donald Trump Effects on the US Bilateral Exports.



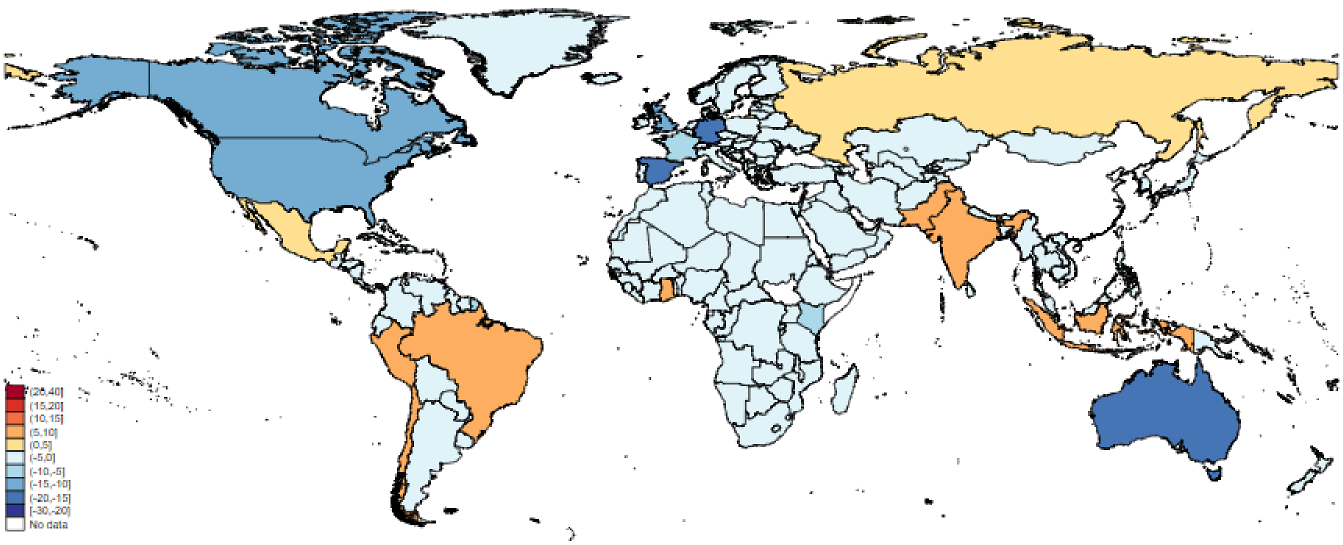
Note: Based on Scenario 2 counterfactual specifications. See the footnote of Table 15.

Figure 9: C1. The Senkaku-Islands Dispute Effects on the Chinese Bilateral Exports.



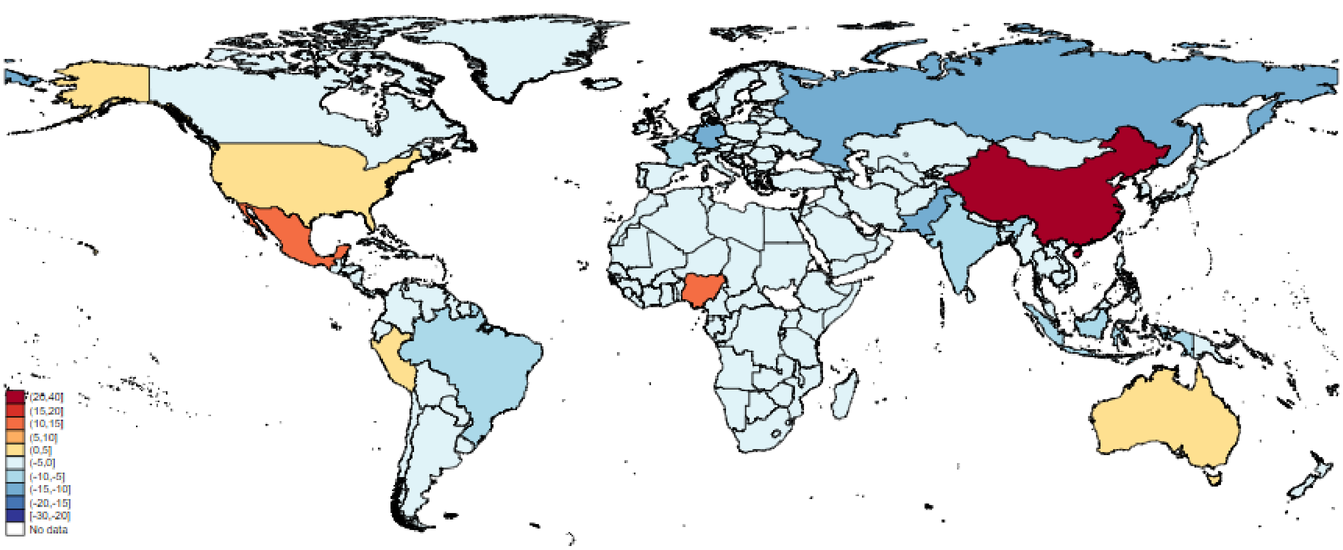
Note: Based on Scenario 2 counterfactual specifications, with changes in the country image of China only. See the footnote of Table 15.

Figure 10: C2. The Senkaku-Islands Dispute Effects on the Chinese Bilateral Exports.



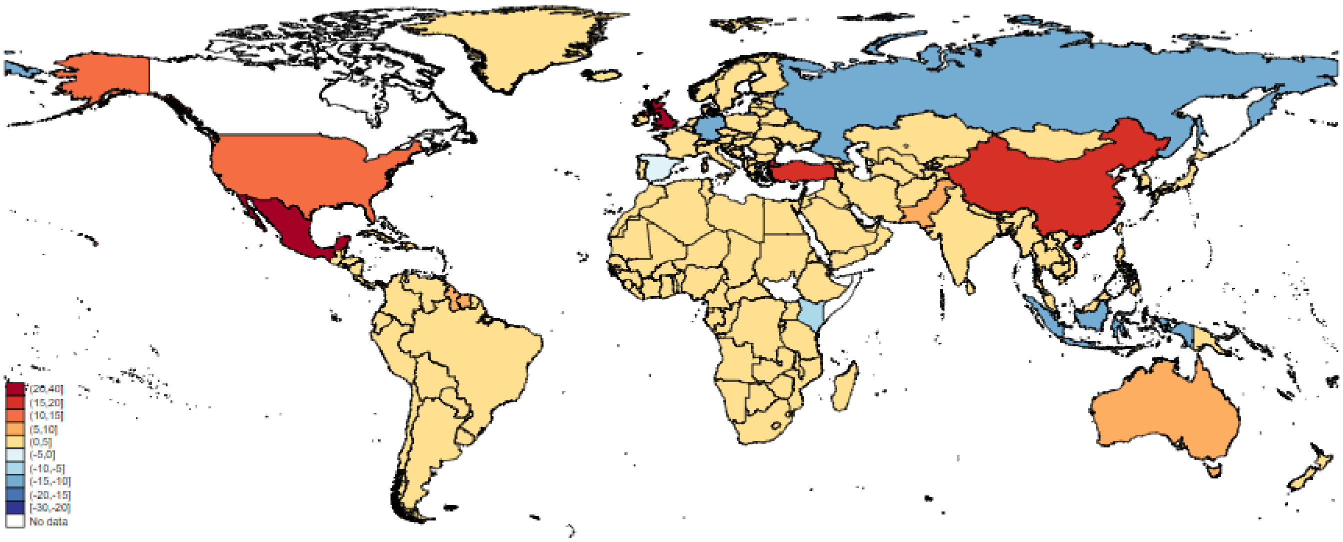
Note: Based on Scenario 2 counterfactual specifications, with changes in the country images of China and Japan. See the footnote of Table 15.

Figure 11: The Brexit Effects on the British Bilateral Exports.



Note: Based on Scenario 3 counterfactual specifications. See the footnote of Table 15. Scenario 3 is illustrated instead of Scenario 2 because there is an outlier (China) in the change of views toward the UK; as a result, the median (instead of mean) is likely more representative of the changes in the views toward the UK in countries excluded from the survey.

Figure 12: The Good-Boy Effects on the Canadian Bilateral Exports.



Note: Based on Scenario 3 counterfactual specifications. See the footnote of Table 15. The results are very similar when based on Scenario 2 instead.